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Romanesque Architecture.

"THE Principles of Romanesque and Gothic Ecclesiastical Architecture" forms the title of one number of the comprehensive work, "A Handbook of Architecture," published by Kröner, Stuttgart, which deals with this art in all its branches—artistic, scientific practical, and historical. This exhaustive work, of which some numbers have reached their third edition, and some are yet in course of preparation, should prove of the greatest interest to architects, engineers, builders, and students of architecture. Each of the four parts, dealing with science, styles, construction, and design, respectively, is divided up into several volumes, which are further sub-divided into numbers, each of which is complete in itself and to be purchased separately.

Herr Hasak is the author of the present number.* The object with which the book is written is to analyse the principles on which mediæval architects worked; to see how far these masters provided satisfactory solutions for the then existing problems, and how far they may claim to be called individual and reasonable. The result of these searching investigations and of repeated comparisons with modern principles, is to strengthen the recognised position which the builders of the Middle Ages hold; a position denied only by the few who hold Semper's view, *i.e.*, that mediæval art is no art, only the results of inadequate workmanship.

In the book the author has endeavoured to prove how mediæval architects worked on the only sound system; how they appropriated the knowledge of their predecessors, continuing their successful methods, while rejecting those which had been found wanting; for progress can only result from a knowledge of past facts, with a just appreciation of their value, and a better application of them. He demonstrates how innovations crept in gradually and were always the result of necessity: the necessity of meeting and satisfying new requirements on the part of the public, and the necessity of yielding to the quality of the material, to the peculiarity of the craft, to the nature of the individual. An architect himself, Herr Hasak appeals to architects to forsake the paths trodden nowadays and to work in the same spirit of reasonableness that actuated their forefathers. He compares the mediæval practical training with the two modern schools of design. The one which sacrifices all individual judgment to a narrow-minded, slavish imitation of classic work, and the other, which neglects the training of the intellect, lest the "Godly spark of genius be dimmed," with the result that "the brain brings forth monstrosities and freaks," whose only claim to a passing attention is that they have never been seen before. The latter school cannot hope to produce the much-desired new style, for enduring innovations will not be created till the artist recognises the truth that human reason must transform that which already exists and has been handed down, and that we "can only rise on stepping-stones of our dead selves to higher things."

Another object with which the book is written is to correct popular fallacies entertained as to the lines on which mediæval architecture progressed.

Three very interesting chapters are devoted to the examination of mediæval working drawings, statics, and status of architects. The author, contrary to the generally accepted view, maintains that working drawings were used from the earliest times, and scouts the idea that buildings grew up haphazard, so to say. He shows from ancient records that the constructors did not trust to chance for the stability of their buildings, but displayed the greatest scientific knowledge, based on matured theories. He emphatically denies the "legend" of the ecclesiastical architect of Romanesque times, and of his Gothic brother, the master-mason, and he demonstrates the existence of a class of men, whose training and functions correspond with the modern acceptation of the word architect.

These assertions hardly open up new questions, for forty years ago Mr. Street announced, as the result of his studies of Gothic in Spain, that with one exception, which Herr Hasak does not acknowledge, all Spanish mediæval architects were laymen and formed a distinct class.

Viollet-le-Duc also specifies the functions of architects from the thirteenth century onwards, describing them as laymen who were much esteemed and highly honoured by their employers. He also mentions the drawings on vellum of Notre Dame, Strasbourg, which are still to be seen, and date from the thirteenth century, some of the details being drawn out full size. Herr Hasak quotes several other existing examples of mediæval working drawings, but accounts for their rarity by the fact that few modern architects would be able to produce their drawings of twenty years back; much less, then, should we expect drawings of 1,000 years back to have survived. He does not agree with Viollet le Duc's ingenious hypothesis that mediæval designs were based on the theory of triangles. He certainly believes that "help lines" were used for working out a design, but these were diagonals. The eye is not satisfied, he says, with parallels in horizontal and vertical lines only, for we see more than one story and more than one bay in a glance. Consequently, parallelism must exist in the oblique lines as well, drawn, so to say, through every capital, base, and important point, the angle of inclination being determined by the chord of the arch. Each pair of diagonals will form two sides of Viollet-le-Duc's triangle, but the latter is a side issue, and the diagonal is the real "help line."

As to the mystery which hovers round the person of the mediæval architect, Herr Hasak explains that the ecclesiastical architect owes his existence to mistranslations: that the word "operarius," usually carelessly translated as "architect," really refers to the canon or monk responsible to the com-

* "Die Baustile: Historische und Technische Entwickelung." 4. Band: "Die Romanische und Gotische Baukunst." 3. Heft: "Der Kirchenbau." Von Max Hasak. A. Kröner, Arnold Bergstrasser, Verlagsbuchhandlung, Stuttgart.

munity for the expenses incurred on a building, and that "magister operis," "magister fabricæ," or "caput magister" is the corresponding term for the modern architect. Similarly the master-mason-architect owes his existence to a misunderstanding. The term mason was applied to artist and artisan alike, in the same indefinite way as the word painter is now used. The term master-mason, on the other hand, was used to describe only the artisan; architects and sculptors adding simply mason to their names. As late as 1610 we find the splendid Renaissance monuments of Magdeburg Cathedral, of which any modern sculptor might be proud, signed "Bastian Ertle, mason."

Herr Hasak further produces documentary evidence as to the employment of the lay architect, evidence which antidates Viollet-le-Duc's by three centuries. A MS. of the tenth century, now in the Imperial Library in Vienna, mentions a layman—Master Odo, of Metz—as being the architect of Aachen Minster. In the obituary notices of St. Michaelsberg, Bamberg, 1121, the architect Richolf is specified as being a layman. In the agreement of Master Raymundo, architect of Lugo Cathedral, 1129, indirect evidence is given by the stipulation that the son shall complete the building in the event of the father's death. About a score of Italian and German names are mentioned of Romanesque architects, together with the records describing them as laymen.

Two other points Herr Hasak is eager to refute. The one is the mason's mark, which he says has enjoyed such undeserved consideration. It was believed at one time that every mason designed and signed the work he carried out; as the author observes, no practical person could have believed this theory. Indeed, half a century ago Fergusson distinctly said that in no instance was a mason of any grade called upon to design as well as to execute his work. The second fallacy which Herr Hasak exposes is that the art of the mason was a secret, the betrayal of which was a punishable offence—not only a secret, but a kind of philosopher's stone which enabled simple artisans, after five years of stone hewing, to build the magic halls of Gothic cathedrals. There is no evidence in support of this theory. On the contrary, in the very detailed regulations of the Ratisbon guild of masons, drawn up in 1459, though the strictest rules are laid down for the training and admission of candidates, no prohibition is imposed forbidding members revealing their art.

The arrangement of the book is most clear and methodical. Ecclesiastical buildings are classified into parish, monastic, collegiate, and cathedral churches. Their planning as a whole is first discussed; their evolution throughout the Gothic world is traced, and practical reasons are advanced for the adoption of peculiar forms. The modern practice of modelling large parish or monastic churches on the plan of a cathedral is strongly condemned, for the problem to be solved in each class of church is a widely different one. The solution which satisfies the requirements of episcopal functions must fail when applied to the needs of a monastic or parochial community.

The text is illustrated by over 300 drawings, taken chiefly from German examples. Herr Hasak contends that the Romanesque style ought to be really called the Germanic style for it was developed on Roman territory, only after the invasion by the Germans; that from Southern Spain to the Baltic provinces, from Sweden to Southern Italy, wherever the ubiquitous German was found, the style bore the same features. Romanesque being then proved the national style, one naturally expects to find its noblest exposition in Germany, and one's admiration for the reticent, grave sobriety of German Romanesque cannot be too strongly expressed. On the other hand, we cannot accept the indiscriminate appreciation shown by the author for every development of Gothic in Germany. In opposition to historical evidence, Germans are apt to claim the credit of the invention of a style, so little assimilated by them, that it proclaims itself to be a copy and no national development. Herr Hasak, indeed, freely acknowledges that Gothic was not a style indigenous to Germany, but that it was imported from France. He is, however, so intent on proving that the mediæval masters were ever practical in their conclusions, and truly themselves, that he ignores the æsthetic defects which, owing to the misunderstanding of a foreign style, arose on German soil. He lavishes unstinted praise on that German peculiarity, the Hallenkirche, of which one of the most famous examples is St. Stephen's, Vienna. He cherishes a weakness for this interior, with its aisles and nave of the same height, as opposed to the basilica section with its low aisles and heavy nave walls. But in these Hallenkirchen, not only is the effect, to less partial eyes, marred by absence of contrast in height, the plan is equally wanting in variety by the three aisles being almost of the same width. The interior of these churches, qualified as "bright, airy, roomy," where the horizontal line predominates, is a striking proof that Gothic is not only foreign to Germany but that its ideals have never been appreciated by German builders.

Even in the Romanesque style, which Germans may lay claim to have invented, and which possesses distinctive characteristics of great beauty, we find sins against artistic propriety. For instance, one of the leading German characteristics is the double-apsidal arrangement of the plan, seen at Laach. This may have been very convenient for ceremonial observances, but it defies obvious æsthetic principles. The external effect is puzzling, while the internal effect is destroyed, by the attention of the spectator being attracted simultaneously by two main features lying in opposite directions. Similarly, the western transepts and lateral entrances, resulting from these western apses, detract from the effect produced by the grouping round the high altar.

Yet another characteristic is the German delight in executing *tours de force* in stone; this erratic self-indulgence of the later Gothic being a strange contrast to the reserve of the Romanesque. The famous openwork spires, of which one of the finest is found at Friburg in the Brisgau, illustrate the discord so noticeable in German Gothic between the design and the material in which it is executed. But for the glory of overcoming constructional difficulties, these spires might, like the central spire of Rouen Cathedral, be executed in metal. A still more striking example of the want of fitness is the dainty veil of tracery spread over the façade of Strasburg Cathedral, which, in Herr Hasak's opinion surpasses in beauty the west front of Rheims, "the most fairy-like French example of the thirteenth century." But he omits to add that this frail screen of masonry is only held together by a network of iron ties.

It is perhaps hardly to be wondered at that, when such extensive ground had to be covered in such limited space, England does not come in for much notice. Notwithstanding the partiality of the author, which makes him practically ignore English examples, the book is of great interest, and contains much useful matter. We are told that in the next number the architects of the Gothic period will be dealt with, together with details such as doors, windows, painting, sculpture, and furniture.

ABOUT SPIRALS.

THE spiral in nature is admittedly a great subject. Men of science, if one speaks to them of the spiral, shake their heads as on the threshold of a theme too large for common talk; and one must therefore admire courage, as much as any other quality, in the man who seeks to give the world a book on this topic. Mr. Cook, in his book on the subject,* to be fair to him, sets out with the acknowledgment that he is only an amateur in the four sciences and one art which are indispensable to the handling of his theme, so that his public can utter no grudge against him for rushing in where specialists walk delicately; and we may admit that the mere airing of the subject—the mere half-opening of doors on a matter of such interest and magnitude gives a pleasure, and, so to speak, an invitation, for which any reader might well offer the writer his thanks.

What we like least in the book is Mr. Cook's main argument. That argument, to put it briefly, and, as we hope, fairly, is: that the well-known *escalier à jour* at Blois was copied from a shell; that the shell in question was *voluta vespertilio*, the spiral of which is so generally dextral that a sinistral specimen is as rare as, or rarer than, a left-handed man; that Leonardo da Vinci, who was probably in France at the time when this staircase was built, was not only a student of spirals, and, in particular, of shells, but was himself left-handed; and that therefore (this is the culminating *ergo*) the painter of the "Vierge aux Rochers" was probably the designer of this sinistral staircase. That Leonardo, "the Italian brother of Faust," a man of genius so omnipotent that we should call it demoniac if it were not so often divine, should be imagined or proved to be the author of this pleasure-giving work, could only be a satisfaction to the students of art; but such a supposition and such a proof could never lie along the lines of Mr. Cook's logic. That there is something in common between all newel staircases and all spiral shells we readily admit, but such an admission is rather a disproof than a support of the notion that the architect of this staircase went straight to a shell form for his model; and, indeed, if there existed a man in the sixteenth century who was ready to base the design of a cylindrical spiral on a natural object which was a spiral indeed, but one of proportionately increasing radius, we hardly think that man was Leonardo da Vinci. On

* "Spirals in Nature and Art." By Theodore Andrea Cook, M.A. F.S.A. London: John Murray. 1903.

reflection one realises that there is no functional analogy between the helix of a shell and that of a newel staircase. The latter is no more than our old friend the inclined plane (the simplest device for the cheating of gravitation in ascent) disposed for economy of space around a central axis; while the shell, sharing nothing with the staircase but progressive rotation, is nature's device for protecting in the smallest of areas a long and growing body.

The more we study Mr. Cook's idea the more confident do we become of its unreasonableness. From an architectural standpoint it is distinctly weak, and, indeed, when we read his chapter on masonry, and follow his theory as to the genesis of the spiral staircase, we are led to hope that for the honour of his book the author's hold on the four sciences is tighter than his grip of the one art which he has studied for his purpose. His quotation, for example, from the "Century Dictionary" does not really support his view, and "the modern architects" who told Mr. Cook that "no workman would pin a step into the outer wall without supporting it by a beam from beneath" were sad rogues to so deceive a fellow-creature in search of knowledge. Mr. Cook asks that his architectural critics will deal with his biology, and leave the art problems to the mathematicians; we will, therefore, say no more on this head than that it must have been Mr. Cook's lot many times in the thirteen years of his research to have gone upstairs and down by such steps as his architect friends have deemed impracticable. He might, it is true, have been referring, in his allusion to "a beam from beneath," to a temporary mason's expedient during the process of fixing; but he makes it probable that this is not his intention by the astonishing statement that with the discovery of the newel (the outcome of overlapping steps) "the outer wall fell into its true position of a mere protective shell." Even if we ignore the principle of the cantilever, the "protective shell" cannot abandon its function as a bearing.

The study of spirals is obscured by two rather curious difficulties. One is that the dextral helix of ordinary parlance is known to the man of science as "leiotropic," while by consequence the dexiotropic is the sinistral. The sense of this lies in the fact that if a staircase turns the same way as a normal corkscrew or the ordinary right-handed screw of joinery, a man walking up it turns, as he walks, ever to the left. And here is the other puzzle. A right-handed screw, such as a wire screw-spring, is dextral from whichever end you consider it; or, to take another example, a rifle twist is sinistral whether it is viewed down the muzzle or up the breach. But yet the dextral staircase is apparently such that it is leiotropic on the way up and dexiotropic on the way down. You have, in fact, your left hand on the newel in ascending, your right in descending. The answer to this riddle (which is sometimes a stumbling block) is that a man in descending, though he turns his face and body round, does not really reverse the conditions of ascent. To truly prove the dextrality of the staircase one has just ascended, one should descend head downwards, and walking, not on the treads, but, like a fly, on the soffit!

We have no space to consider here Mr. Cook's survey of the spiral in vegetable growth, nor his very interesting studies of the same form in other spheres, but we should wish to make it clear that the failure, as we think it, of his main contention does not by any means nullify the value of a readable discourse on a subject so wide and so elusive as to almost defy straightforward treatment. We put the book down at the end with a renewed sense of reverence for its great theme.

Coupling as it does the mystery of rotation with the mystery of progression, and adding thereto in the case of some organisms the perhaps greater mystery of logarithmic property, the spiral is indeed a force in the universe to be approached with uncovered head.

NOTES.

Municipal Trading.

IT is some satisfaction that the Government has carried the motion for the appointment of a Select Committee of the House of Commons to act in conjunction with a Committee of the House of Lords in considering the principles which should govern the powers conferred on Municipal Authorities for industrial enterprise within and without the area of their jurisdiction. This being merely an application for a Committee to be appointed to give this important question what may be termed judicial consideration and to report to the House, the attitude adopted by the partisans of municipal trading in their speeches against the motion appeared symbolical of a certain distrust in their cause which, according to their own view, appears to be one in which inquiry spells condemnation. However this may be, the Prime Minister in an impartial speech pointed out some of the chief questions on which information especially was required—the desirability of allowing municipalities to employ their own constituents, the tendency where municipalities employ machinery and plant to stagnation and want of enterprise and competition—a tendency having no operation in their original sphere of enterprise, viz., road and street improvements, show the improvements are in their nature permanent—and the importance of determinating the area of enterprise of the various municipalities. It is obvious that in many classes of enterprise the rigidly defined areas will lead to want of economy and waste of power. Mr. Balfour himself specified tramway enterprise as one as to which he entertained considerable doubt whether it should be in the hands of municipalities, and in this connexion we would point out that the London United Tramways, whose new system to Hampton Court was opened last Thursday, furnishes a concrete example of the advantages to be obtained by having such enterprises in private hands. Their system now passes through the jurisdiction of more than one Municipality, extending in all thirty miles, and although the new section only comprises some seven or eight miles, to obtain this extension the Company have had to expend some 200,000*l.* on public improvements; unremunerative works, which in the hands of a Corporation would have been done at the ratepayers' expense.

The Housing Question in the House of Commons.

THE debate last week in the House of Commons on the Housing Question was extremely futile and ill-judged. Mr. Hay brought forward a motion censuring the Local Government Board for not showing greater energy in connexion with this question. As we have very often said, the Local Authorities are the bodies which, at the present time, need to show more activity and interest in this matter, and especially in the rural districts. Mr. Hay gave an example of the shortcomings of the Local Government Board which, if it was of any value at all, was evidence of the cumbrous state of the law and of the slowness of action of the Local Authorities. The Local Government Board has, by the legislature, been placed in a very peculiar position in relation not only to housing, but to sanitary and other matters. It has, as one may say, to stimulate and also to censure local bodies; but it is the latter in whom both the power of the purse and the power of action exists, and the Local Government Board has the delicate duty of having to keep the local bodies up to the mark by exhortation, and not by punishment. There is no doubt whatever that this duty is very well performed by this Department, and we cannot understand why the Member for Hoxton wasted the time of the House of Commons with a motion which was quite wrongly directed, which received very little support, and the discussion of which was without any practical value.

Tramways on the Embankment.

THE House of Commons last week threw out that part of the London County Council's Tramway Bill which would have empowered them to construct a tramway across Westminster Bridge and along the Embankment. The ostensible ground of this refusal was the fact that the Government Commission is now sitting to consider the question of the London traffic, but so far as Westminster Bridge is concerned the recommendation of the Commission need not be waited for. Every one admits that the north and south of the Thames must be connected, and unquestionably it would be more convenient that the tramways should be brought over the bridge so that passengers could be put in communication with the Metropolitan Railway. As this railway runs under the Embankment, the only other scheme can be a tramway on the Embankment, and the existence of the Commission seems only an excuse for delaying the building of a tramway, which must sooner or later take place. Nothing is more remarkable than the selfishness of the well-to-do population of London, of whom the House of Commons is a very good representative, in regard to locomotion for the artisan and working class. We trust that the Commission, when it reports, will emphasise the need for the better means of transit for the bulk of those who use the streets, especially in the West End.

Engineering Standards Committee.

IN a recent article upon the useful work of this Committee, we mentioned the probability that financial support might be afforded by Government, and we are now pleased to learn that, in response to a request made through the Board of Trade, the Treasury have expressed their willingness to include in the Board of Trade vote for 1903-4 a sum of 3,000*l.* as a contribution to the funds of the Engineering Standards Committee, but with the previso that they shall not be thereby pledged to continue the grant in later years. It is always pleasant

to find a Government Department, and especially the Treasury, ready to support work of the kind undertaken by the Committee, but considering the fact that the labours of that body include the preparation of standard specifications for engineering works, and the standardisation of parts of locomotives and electrical appliances, in addition to the final standardisation of structural iron and steel, it does not appear that the grant is in any way of extravagant proportions. In addition to the deliberations of the various sectional committees, a vast amount of clerical work has to be performed, and endless mathematical details have to be calculated before the various tests can be published. These can only be completed by the aid of money, and the more money there is at the disposal of the Committee, the more rapidly can the standard schedules be finished and placed in the hands of the public. We therefore express the hope that the Government grant will not only be renewed next year, but will also be increased in amount. We are glad to observe that the Board of Trade are thoroughly alive to the immense value the new standards will possess for the country at large.

Building Construction. To say that construction is a necessary part of true design is merely to state a truism, but unfortunately it is still the case that correct constructional methods are sometimes avoided by those responsible for the design of buildings. One or two recent cases, which have not been and probably never will be reported, may serve to make clear the present point. The first case relates to some business premises, lately erected in the North of England, having bay windows above the ground floor. During construction the architect noticed that the front of the building appeared to be coming down, and, being unable to discover the cause, he called upon a civil engineer for advice. No satisfactory information was available as to the exact details of the foundations, but examination of the failing front showed at once that the projecting windows were supported on cantilever brackets bolted to the girder over the shop front. It then became perfectly clear to the structural expert that the girder was actually beginning to rotate about its longitudinal axis, owing to the weight and leverage of the projecting work, and to the absence of any adequate counterbalancing force. When the disturbing cause was once discovered, the remedy was quickly applied, and the building was rendered safe. The second case refers to a municipal building in another northern city, which is founded on alluvial soil of very yielding character. This being so, it is naturally to be expected that some slight settlement will occur when a new building is erected, and also that those who build will be aware of this phenomenon. In the case of the building to which we now refer, it does not seem to have occurred to any one responsible that the settlement of one structure might cause injury to an older structure adjoining. The result is that one wall of the latter has subsided some 3 in. or 4 in., and the stone front is damaged from top to bottom for a width of 4 ft. or 5 ft. A little judicious underpinning and the application of half a dozen screw-jacks would have saved the heavy cost now necessary to restore the damaged building and to compensate the owners. Examples such as these are probably exceptional, but they certainly serve to show how important it is that the rising generation of architects should be thoroughly grounded in the principles of mechanical science.

Concrete and Mortar Beams Under Flexure. A BRIEF, but useful, paper, bearing upon the co-efficient of elasticity of concrete and mortar beams, is now before the American Society of Civil Engineers for discussion. The results quoted by the author relate to beams tested to the point of failure, and they are of more than ordinary value, as the beams tested were seven years old. Four beams, measuring 4 in. square by 38 in. long, were tested; two of gravel-concrete, 1, 2, 4 and 1, 3, 5, and two of cement mortar, 1, 3 and 1, 2. The beams were first broken by weights applied at the centre of 36-in. spans, and afterwards each half was broken by weights applied at the centre of 16-in. spans. It appears that the strain of deflection consisted of two parts, one apparently permanent and the other elastic, the latter disappearing upon removal of the load. The co-efficient of elasticity was computed by using the difference between the two deflections thus found, and the deflection was shown to vary almost exactly as the centre load. The co-efficient of elasticity for the concrete beams was found to vary from 387,000 lbs. to 1,591,000 lbs. per square inch, the average being 1,083,000 lbs., and for the cement mortar beams it varied from 597,000 lbs. to 2,440,000 lbs. per square inch, the average being 1,357,000 lbs. Similarly, the extreme fibre stresses were, for concrete, from 208 lbs. to 315 lbs., averaging 255·4 lbs. per square inch; and for cement mortar, from 294 lbs. to 636 lbs., averaging 471 lbs. per square inch. As usual in experiments upon such materials the variations are rather wide, but the results now obtained agree fairly well with those of other investigators.

The Properties of Radium. THE discovery recently made by M. and Mme. Curie that barium chloride containing radium emits heat continuously without itself undergoing any appreciable change, has naturally caused a stir in the scientific world. Radium is an element which was discovered a few years ago, and is obtained from the mineral known as "pitchblende," which is an oxide of uranium, found in comparatively small quantities in Cornwall and in some other parts of the world. A ton of pitchblende contains only a few grains of radium, and up to the present date the total weight of radium compound extracted in the entire world probably does not exceed 1 oz. Very little is yet known about radium, but it has already been discovered that (1) it emits heat without undergoing combustion and without undergoing any measurable change in weight, (2) it maintains itself at a temperature higher than that of surrounding bodies, (3) it emits invisible rays which rapidly blister and destroy the human skin, and (4) it causes substances with which it comes in contact to become luminescent in the dark. Energy cannot be created; it can merely be converted from one form into some other form, and the power possessed by radium of perpetually emitting heat is supposed to be due to its power of converting into heat some form of energy which has not yet been discovered. Sir William Crookes, the two Curies, and other eminent scientists who are now concentrating their attention on radium, will no doubt soon be able to publish further information regarding its properties.

East Retford Sewage Works. AN illustrated pamphlet describing the sewerage and sewage disposal works at East Retford, and apparently written by the engineer, Mr. J. C. Melliss, M.Inst.C.E., has been sent to us. An interesting feature of the sewerage is the use of Shone's pneumatic ejectors for the purpose of raising the sewage from a low-lying portion of the district, and again at the outfall works. The method of disposal is chemical precipitation, followed by filtration through land. The precipitants are said to be "crude sulphate of alumina, carbon, and lime," and two tons of *pressed* sludge are produced daily. It seems to us that the scheme is a costly one, considering that the population of the district is only 13,000, and that the sewage is chiefly of a domestic character. The initial outlay was about 52,000*l.*, and the annual cost of carrying on the works is estimated at 594*l.*

Inconsistent Iconoclasts. THE Town Council of Bedford decided last week to demolish the structure known as the Floral Hall—the last remaining building disfiguring the fine open space in the centre of the town, adjoining St. Paul's Church. The hall in question, originally erected as a Corn Exchange, was superseded by a more suitable building some years since. This very sensible action on the part of the Council is being vigorously protested against by a section of the inhabitants, and, according to the local press, the leaders of the opposition are the very people who insisted on the demolition of the venerable remains of the old Greyfriars Priory! It may be remembered that we joined in the ineffectual plea for the preservation of this interesting old relic, which has now entirely disappeared, the site being given over to the public as a recreation ground. It may be added that the gift was so abused that it was at one time an intolerable nuisance to the neighbourhood, and the cause of a disturbance almost amounting to a riot. The removal of the "Floral Hall" will have a very different effect, and will leave the statue of John Howard and St. Paul's Church in sole possession of St. Paul's-square.

A Memorial to Bede. A COMMITTEE have been constituted for the erection, at a cost of 500*l.*, towards which they ask for subscriptions, of a memorial to the Venerable Bede. The proposed monument, in the form of an Anglian cross, will be set up at Roker Point, Monkwearmouth, on a site that formerly appertained to the united monasteries of St. Peter and St. Paul at Wearmouth and Jarrow. Bede, as he himself says, was born in that territory, which two years before his birth in 673 had been granted by Ecfrid, King of Deira and Bernicia, to his thane Biscopus, afterwards Abbot Benedict. Benedict founded St. Peter's convent on the north bank of the Wear, and subsequently in 682 established that of St. Paul at Jarrow by the Tyne, five miles distant, where Ecfrid had given him forty hides of land. When but seven years

old, Bede was placed under Benedict's care at Wearmouth, and then, still a youth, went to St. Paul's at Jarrow under Ceolfrid, its first abbot. There he passed all the rest of his studious life, with the exception of a few visits into Yorkshire and Kent, and, as some maintain, albeit upon very slender grounds, a journey to Rome and a term of residence as a professor at Cambridge. St. Cuthbert relates in a letter to Cuthwm the manner of his death, which happened on May 26, 735. His remains were stolen by Elfred, a priest of Durham, and, having been preserved in secret in St. Cuthbert's tomb, were removed by Bishop Hugh Pudsey or Puiset, who occupied the see in 1153-1179, into a magnificent shrine, which was despoiled *temp.* Henry VIII. The two monasteries suffered grievously at the hands of the Danes, and in 1083 were converted by Bishop William de Carilepho into cells of St. Cuthbert's at Durham, the rebuilding of which he began ten years afterwards.

Wine Office-court, Fleet-street.

AT the Mart, on the 1st inst., were sold, for 1,275*l.*, the house, No. 6, and its site, for rebuilding purposes, and No. 9, a corner house, for 2,800*l.* Two adjacent houses, opposite the time-honoured Cheshire Cheese, are also to be rebuilt. No 6, on the west side, was the London home during nearly four years of Oliver Goldsmith. He removed thither in the autumn of 1760 from his lodgings at No. 12, Green Arbour-court (since demolished), between Farringdon-street and Old Bailey. The house belonged to a relative of Newbery, who had given him more regular and profitable employment. Goldsmith's sojourn in Wine Office-court, where he rented two rooms, is memorable for the circumstance that whilst living there he first made acquaintanceship with Dr. Johnson, whom on May 31, 1761, Dr. Percy took to sup with Goldsmith, as Percy relates in the biographical memoir compiled by various writers for the edition of the poet's miscellaneous works, and with Beauclerk, Burke, Reynolds, Tom Davies, Hogarth, and Boswell. He occupied the rooms until the spring of 1764, when he removed to some chambers on the library staircase in the Temple; in the meantime he occasionally sought quiet and retreat in "country" lodgings at Islington. During the interval we mention he wrote his "Life of Beau Nash," began for James Dodsley a "Chronological History of the Lives of Eminent Persons of Great Britain and Ireland," commenced the "Traveller" and the "Vicar of Wakefield," wrote for Newbery a "Compendium of Biography," and a "History of England," and was elected one of the original twelve members of The Club, which after Garrick's death was named the Literary Club.

The New English Art Club.

THE exhibitions of the New English Art Club vary very much; sometimes one finds eccentricity and ugliness quite in the ascendant; at other times, as in the present instance, among a good many eccentric and unfinished sketches there is a fair proportion of works of real interest. The effort to convey impressions of light, colour, and atmosphere in landscape, rather than realism of detail, is finely illustrated and perfectly successful in the various works by Mr. Mark Fisher and (not so far behind him) Miss Alice Fanner; Mr. Bellingham-Smith's "Tea-party" (69) conveys admirably the effect of light struggling through trees; even "The Golden Valley" (56) of Mr. Wilson Steer, an impressionist who often misses (or goes beyond) his mark, is really successful in conveying the impression of sunlight, though not of much else. Mr. Steer also exhibits a large sketch of a wall decoration, hardly decorative enough save in the ornamental framework of the picture. Some interior studies with figures vex one from the unnecessary ugliness of the personages introduced, as in Mr. Muirhead's "The Sisters" (53), a good piece of interior effect marred by the mean heads of the two women. Mr. Dodd, in "Afternoon" (61) interests us by a truthful rendering of character and colour in all the accessories without giving way to any of the hard glitter which reduces painting to a mechanical imitation; the same praise is due to Mr. W. W. Russell's interior scene "Reference" (93); here the figure is of some dignity, though the same artist in "Prints" (65) is content with a figure absolutely devoid of charm. Personal beauty is at a discount in the Club, Mr. Johnstone Douglas's charming face under "The Grey Veil" (70) forming the one exception. Mr. Furse's large portrait group at the head of the room is hardly one of his best efforts; in the portrait group called "The Song" (98) there is character enough, and a bold painting of the black silk dress, but the lady who wears it strikes one as very short in proportion to the scale of her head. Undoubtedly the most artistic piece of work among the figure subjects is Mr. Orpen's half-length seated figure "The Red Scarf" (103); not an agreeable face, but the whole full of character and colour. Among other things to be mentioned are Mr. Homer Watson's powerful though loaded landscape, "The Edge of the Plateau" (80); Mr. Duff's "Winter Lambs" (86); Mr. Thornton's "Scene on the Arno" (77), with its glimmering buildings on the further bank; and two still-life studies (94 and 106), by Mr. Orpen and Miss Cornish respectively.

Mr. Kerr-Lawson's Italian Landscapes.

A COLLECTION of small landscapes from Italy by Mr. Kerr-Lawson, at Messrs. Dowdeswell's Gallery, is of interest from their individuality of style and treatment. They are mostly city landscapes, in which buildings figure largely, and the artist seems to aim at conveying the essential architectural character and colour of the scene in slightly executed and rather flatly-tinted studies which nevertheless give the impression of careful and conscientious observation; what is omitted is omitted from choice and selection. The first in the catalogue "Venice," with the groups of buildings rising from an untouched expanse of water, is very effective; so is "The Zattere, Venice" (8), and "The Piazza, Siena" (18); "The Salute, Venice" (26) a little grey drawing giving a new idea of a celebrated architectural group; and a delicately-handled little moonlight scene, "Vallombrosa from Rovezzano" (35).

The Modern Gallery.

AT the Modern Gallery are a large number of small paintings of Irish scenery, "The Land of the Shamrock," by Mr. Alexander Williams, R.H.A.* The general quality of these is very good; the artist is more particularly successful in coast scenery. No. 2, "The Loaded Winds Bring in the Gathering Storm," is a really fine picture on a small scale, very wild and stormy in effect. In "Ireland's Eye, Dublin Bay" (103), the fresh bright impression of the rough sea is admirable. In Nos. 53 and 110 the barren seaside foregrounds, sand and rushes in one case, gorse in the other, are painted with great truth; "A Shore Sketch" (75) shows a fine effect of calm with cloud reflections. Many others, including inland scenes, are worth attention, but it is in coast scenery that Mr. Williams is at his best.

Monumental Bridges.

IN our Note last week headed "Proposed Lambeth Bridge," by a printer's error which escaped notice we were betrayed into saying that we did not see why the Thames Conservancy should be allowed, by over-stringent requirements, "to deprive us of any more bridges of ornamental character." The word intended and written was not "ornamental," but "monumental," which is a very different thing. We have never asked for "ornamental" bridges; we want monumental bridges—*i.e.* solid architectural structures, not steel girders.

TELE-PHOTOGRAPHY, A MEANS OF SECURING PHOTOGRAPHS OF ARCHITECTURAL DETAILS.

BY ERNEST MARRIAGE, F.R.P.S.

THE difficulty, or rather the impossibility, of obtaining photographs of the interesting architectural details about or inside large public buildings must be familiar to every architect. General views of small interest can almost always be bought in the town, but, go where you will, photographs of important structural details cannot be found. The local photographer has insufficient enterprise, or the public demand is not large enough to warrant the outlay involved in the making of the necessary negatives. Prior to the introduction of tele-photography (about the year 1892) it was often only possible to take large scale photographs of detail by the use of staging, and the expense of such a method is prohibitive to a travelling photographer. The tele-photographic lens makes it possible to record a piece of detail on a building from a greater distance; its height above ground level is a matter of less consequence to the tele-photographer, so long as there is a fair amount of space in front of the subject.

An illustration will make this point clear to the reader. The illustration marked A in the lithograph plate is a view in the atrium of the church of St. Ambrose in Milan, taken with a 6-in. lens. The lens was fifteen yards away from the second pillar—not the nearest one, but that next to it, and about the middle of the photograph. These pillars are 15 ft. or 16 ft. high, and a staging some 10 ft. from the pavement would be required if the capitals were to be taken with an ordinary lens. The camera should be nearly on a level with the subject if a near point of view is chosen, and a near standpoint is essential if the capital is to be photographed with an ordinary lens, unless a minute scale will suffice. The capital on the nearest column gives an idea of the alteration in perspective brought about by a nearer point of view. B is a tele-photograph taken from the same spot as the previous example; the same 6-in. lens was used, but a tele-photographic attachment was added to it, and the scale of picture multiplied by twelve. As A and B have been equally reduced in making the half-tone blocks, the exact gain in size due to the use of a tele-photographic lens is shown. In this atrium there are eighteen

* "Royal Hibernian Academy," not "Royal Horse Artillery," as the affix is sometimes read in England; a mistake which carries with it the inference that the artist is an amateur.

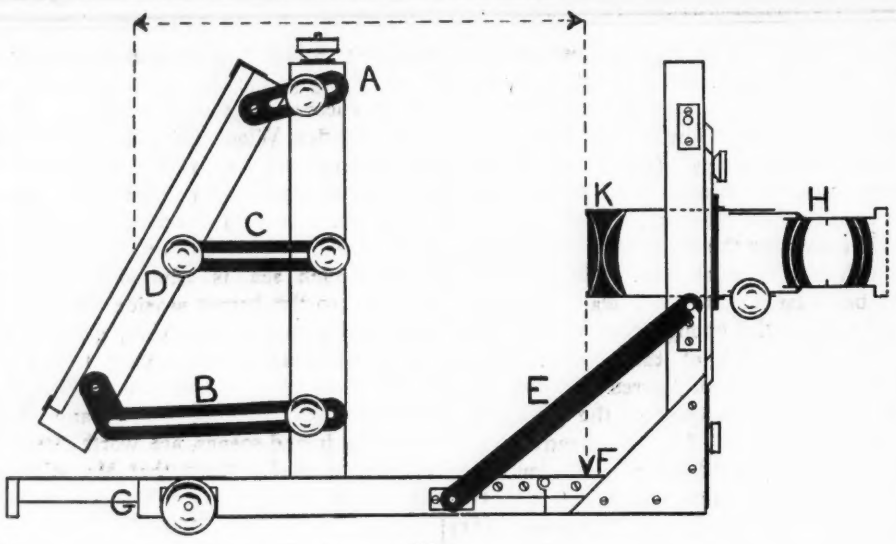

Fig. 1.

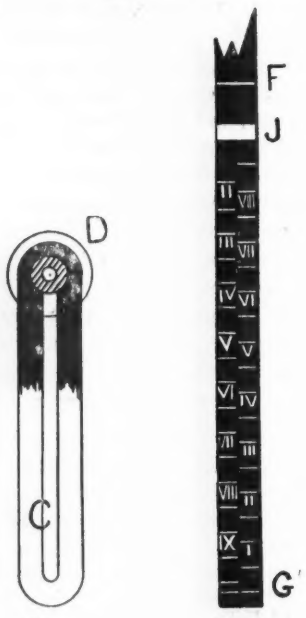

Fig. 3.

Fig. 2.

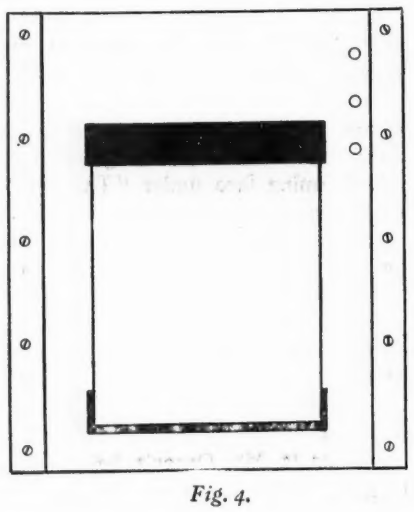

Fig. 4.

free pillars, with capitals carved on the four sides, similar to those which are reproduced; the subjects are varied, no two being exactly alike. C, also a tele-photograph, shows the treatment of animals in Romanesque carvings. The capitals to the pilasters against the walls are also worthy of note; there are over twenty of these, including the capitals to the doorways on the west front. It will be seen what a large field of usefulness tele-photography opens out in the study of design and decoration to the architect and sculptor.

For architectural tele-photography an expensive lens is not required, the negative attachment can be fitted to any good ordinary lens at a cost of from 3*l.* to 5*l.* A tele-photographic lens has another great advantage over ordinary lenses, besides the increased scale of the photographs, viz., that the focal length can be altered at will. In buying a telephotographic attachment, you have secured a number of lenses in one.

The camera and tripod should be strong, even at the cost of some increased weight. The size is a matter for individual choice. I use a 7½ in. by 5 in. camera (of which fig. 4 is a scale drawing) but would recommend a whole plate camera in preference, as 7½ in. by 5 in. plates are not quite so easy to get, and the shape is rather narrow for architectural subjects. The half-plate camera has less extension, and is on that account less suitable for tele-photography; upon the length to which the camera will rack out depends the scale of the tele-photograph. The most suitable type of camera has square parallel bellows and fixed front; triple extension is very undesirable. The camera outlined in fig. 1 (I omit the bellows for the sake of clearness) is of the usual design, the chief difference being in the method of swinging the back. The common pattern only allows a slight amount of swing to be obtained, whilst for tele-photography a range of 30 deg. should be practicable. The brass stays A and B explain themselves; B is crooked in order that it may not project when the camera is closed. The front strut E must be bent outwards slightly in the middle to clear the screw D under the same condition. The screw D and the stay C are of special form, better shown in fig. 2. The slot in C ends in a round hole, and there is a shoulder on the screw D, shaded in the plan, which fits this hole; the shoulder is a trifle deeper than the thickness of the stay, so that the screw cannot bind the stay. D thus forms a pivot upon which the back swings until it is clamped in position by the binding screws on the stays A and B. Turning again to fig. 1, H and K represent a tele-photographic lens. H is an ordinary rectilinear lens, and K the negative lens of the tele-photographic attachment. Focussing is performed by moving H by means of the rack and pinion further from or nearer to K.

The point F on the base marks the distance the negative lens projects inside the body of the camera. The distance between the negative lens and the screen, indicated at the top of the plan by a dotted line and arrow heads should always be noted before making an exposure. A pocket measure should be carried for this purpose if suitable scales do not form part of the camera. In a camera of this pattern, the back is clamped to two stout brass strips running along the base; these can be engraved with scales; ¼ in. gradations will be sufficiently small, or, if the metric system is preferred, ·5 of a centimetre. Fig. 3 shows a convenient form of the scale; it is marked in half-inches. F. and G. refer to the points so marked in fig. 4. J is the break in the continuity of the strip, which comes at the hinge of the camera. The scale on the right starts from the end of the fixed base-board at G, using G as an index, the length to which the camera has been racked is read off. The other scale to the left shows the distance that the back has been moved along the guides from a given starting-point, the bottom of the swing back, if it is closed against the upright, marks the extension, and the addition of the two measurements gives the total extension. If the scales are intended solely for use with one tele-photographic lens, zero of the left-hand scale should be placed at the point F, but if they are to be used with other tele-photographic lenses which do not project inside the camera to the same extent, or with ordinary lenses, the outside face of the flange on the camera front is probably the best starting-point.

A camera that is to be used for architectural photography with ordinary lenses should have a wide range in the rising front. A useful plan for increasing the extent of this movement is shown in fig. 4. The drawing represents the front of my camera with the rising and cross front removed. The black slip is rabbeted into the camera and is movable. When rise is required it is placed as shown, if it is desirable to lower the front as much as possible, the slip is taken out and placed at the top, where it fits into the space indicated by the heavy line. The slot in the front itself should be long and protected with a brass plate, and several screw-holes for the binding screw should be made in the body of the camera; one is insufficient.

Whether or not the architectural photographer takes up tele-photography, his outfit is incomplete without a tilting table. It is not possible to tilt the camera to any great extent by means of the tripod and at the same time maintain stable equilibrium, whilst photographs of floor or roof detail are impossible without a tilting table, or some bulkier substitute. For architectural tele-photography a tilting table is absolutely essential, because the lens should be kept in the centre of the camera front. Raising the lens by means of the rising front to any appreciable extent will result in the plate being imperfectly covered, especially when the distance between the negative lens and the plate is short, and, further than this, it is very ineffective, as the alteration in the field of view is slight.

Mention has been previously made of the fact that the scale of the tele-photograph depends, other things being equal, upon the extension of the camera; as the scale increases the requisite exposure increases. The exposure should be directly proportional to the square of the magnification. By magnification is meant the linear increase in the size of the image in the tele-photograph compared with a photograph taken with the ordinary lens alone; compare A and B in the plate. As B is an example of twelve magnifications, the exposure should have been 144 times that necessary for the part of A which it represents, using the same stop in the ordinary lens in each case.

Without some means of finding out the magnification, exposures would be largely a matter of guess work. To find the magnification, divide the distance from the negative lens to the screen by the focal length of the negative lens and add one; the result is the magnification. For example, the focal length of the negative lens is 4 in., the distance between it and the screen 12 in.; then the magnification is 3 + 1, or 4 times, and the exposure must be sixteen times what you would give if the ordinary lens alone were used at the same aperture, say *f*16.

Another way of increasing the magnification and scale is to use a negative lens of shorter focal length. The illustrations E, F, G, in the lithograph were photographed from the same spot. They are details from the beautiful north porch of Chartres Cathedral. E was was taken with an ordinary lens, F with a tele-photo lens and a moderate camera extension, 13 in. from negative lens to screen; for G a shorter negative lens was used, and this distance increased to 16¼ in. From this spot, and with the same camera and lenses, the scale of the tele-photographs could have been varied to any extent between the limits shown in examples F and G.

There is one fault which a beginner is almost certain to make in work of this kind—he does not see that his plate is properly covered; there is detail in the centre of the negative, but its corners are transparent and print out black. The natural tendency at first is to keep the camera too close to the object which is to be tele-photographed; then the camera extension must be short or the detail will be too large for the plate. With a shortened camera extension, the covering power of a tele-photograph lens is diminished. To remedy the defect, the camera is moved away from the object and the extension increased, to make up for the consequent loss in size; with

the increased extension of the camera, the plate will be found to be properly covered. One of my earliest attempts at tele-photography had three obvious defects. Failure to cover the plate, because the lens was probably raised above the centre of the plate, hence the upper corners were more devoid of detail than the lower ones. The lens was not focussed sharply; this was owing to the fact that the capital was on the dark side of the arch, but the difficulty might have been overcome by placing a candle on or close to the capital and focussing either on the flame itself, or by the light cast upon the capital. A piece of bold type placed on the object is often very useful in a case of this sort. The third defect was that the perpendicular lines of the columns diverged, which is evidence that the camera was tilted, but the back was not swung, and consequently was not perpendicular at the time of exposure.

The following advice may be useful to the novice. All photographs of detail should be taken in diffused light if possible. If the sun is shining, sometimes an obliging cloud will obscure it for a time sufficiently long to enable an exposure to be made in diffused light. If a series of photographs is to be made of a large building or cathedral, begin work in the morning on the south side and go to the west as soon as the sun interferes; the north side may be safely left to the afternoon, when any exposures should also be made upon the east end. The final focussing of the tele-photograph should be made with the same stop in the front lens as that which is used for making the exposure. Do not take tele-photographs of detail against the sky if it can be avoided.

Somewhat different conditions come into force when more distant views of buildings are the objects to be portrayed. In many cases sunlight will be helpful, especially if the sun is not too high and overpowering. Example D on the plate is a tele-photograph taken just as the sun was breaking through thin cloud; the soft touch of sunlight on the flying buttresses helps to throw these into prominence and to accentuate what is the main point of interest to the architect.

THE ARCHITECTURAL ASSOCIATION.

AN ordinary general meeting of the Architectural Association was held on Friday last week in the Meeting-room of the Royal Institute of British Architects, No. 9, Conduit-street, Regent-street, Mr. H. T. Hare, President, in the chair.

Mr. A. J. Healey having been elected a member of the Association,

Mr. R. S. Balfour, hon. secretary, proposed a vote of thanks to Mr. W. E. Riley for kindly conducting a party of members over the London County Council estate at Totterdown on the 21st ult.* This having been agreed to,

Mr. Balfour announced the following classes, commencing:—April 8, "Land Surveying," Professor H. Adams, lecturer; April 23, "Quantity Surveying," Mr. H. J. Leaning, lecturer.

It was also announced that a meeting of the Discussion Section will be held on April 29, when a paper will be read by Mr. H. Cotman, entitled "A Tour in Gloucestershire," also that a paper by Mr. E. T. Hall, on "Hospitals," will be read before the Royal Institute of British Architects on April 20.

The Chairman read the list of officers nominated for session 1903-4*, and the following gentlemen were appointed to act as scrutineers for the occasion, *i.e.*, Messrs. W. J. H. Leverton, L. Simmons, T. C. Yates, A. Potter, and A. S. Tayler.

Andrea Palladio: His Life and Work.

Mr. Banister F. Fletcher then read the following paper:—

Of the early life and parentage of Andrea Palladio there exists but little information.

All his biographers, with the exception of Paolo Gualdo, describe him as having been born in the year 1518. The latter, however, informs us that he was born in 1508, thus making him just ten years older; but, unfortunately, there is no further confirmation of this statement. Palladio's father was a mason at Vicenza, where he died in 1545.

Though we should much like to know some of the circumstances of his boyhood and the various influences and episodes which contributed to his success in after years, all we are privileged to learn is from Palladio himself, for he tells us that he early possessed a great love and natural inclination for architecture, and that, as a boy, he read Cæsar's "Commentaries," and imagined and designed the bridge over the Rhine from Cæsar's written description, afterwards utilising this over the Bacchiglione, near Vicenza.

Gualdo mentions that Palladio also seriously studied mathematics, which he considered an essential part of an architect's education. His humble birth is corroborated by Leoni, who describes him as of "mean extraction," adding, "that in consideration of his great abilities, and as a reward for the honours he did his native city, he was made free of same, and received into the body of the nobility." But this honour only came to Palladio when his fame was established throughout the whole of Northern Italy. It is evident that his early life was a studious one, and we naturally infer that a most excellent education was conferred upon him by his father, the mason Pietro, who, in all probability, sacrificed much to secure his son's future. The latter appears to have soon deserted sculpture for architecture, meanwhile also studying the works of Vitruvius, Alberti, Michelozzi, Cronaca, Serlio, and San Gallo.

In accordance with the custom of the times, Palladio possessed a patron in Gian Giorgio Trissino. It was with this patron that he first visited Rome in 1541, when he was thirty-three years of age. He must have been exceedingly industrious during this visit, as his drawings of the Classic buildings in his treatise testify.

He visited at various periods Ancona, Rimini, Naples, Capua, Pola in Istria, and Nimes. In May, 1547, we also hear of his visiting Tivoli, Palestrina, Porto, and Albano, returning to Vicenza in July, and taking with him nine books, entitled "L'Italia liberata dai Goti." In 1551 he is for the third time in Rome, "in the company of Venetian gentlemen."

His time there was spent in earnest researches among the ruins of her temples and edifices; a time of hard labour, of measuring minutely, and theorising, the results of which he has handed down to posterity in his valuable writings on architecture.

He says, "I began, with the utmost accuracy, to measure every minute part by itself, and, indeed, I became so scrupulous an examiner of them, not discovering that anything of this kind is performed without the justest reason and the finest proportion, that I afterwards, not once but very often, took journeys to several parts of Italy, and even out of it, that I might be able from such fragments to comprehend what the whole must needs have been, and to make draughts accordingly. I thought this an undertaking worthy of a man who considers that he was not born for himself only, but likewise for the good of others."

During his stay in the ancient city no doubt he came often in contact with many of the great artists of the day. Here he could gaze upon the great achievements of Bramante, such as the Cancellaria and Girand Palaces and the little Temple of S. Pietro in Montorio, and upon the works of Raphael, who died in 1520; could study the progress of the cupola of St. Peter under the masterly direction of Michelangelo, and see this great master's work on the Palazzi dei Conservatori on the Capitol.

The work of Baldasare Peruzzi at the Palazzo Pietro Massimi and of Antonio San Gallo at the Farnese Palace were also completed at the time of his first visit to Rome.

In Palladio's writings we find interesting information regarding the architects and painters of his day. Especially does he eulogise Vasari, whom he styles "a painter and architect of great merit." We also find mention made of Sansovino, who died in 1570, accompanied by much praise of the buildings erected by him. Other contemporaries are mentioned, amongst these being San Micheli, the great military architect of the Renaissance whose special work is evidenced in his fortresses and palaces at Verona.

We have no information regarding Palladio's marriage, neither do we find any mention made of his wife. He had a family of four sons and one daughter. The eldest son, Marc Antonio, became a sculptor, like his father; we find him living at Venice in 1588, and he died in 1600. Leonidas, who assisted his father, died about 1574. We read of his directing the building of the dome at Montagnana in 1566. Orazio, the third son, studied law in Padua in 1564 and died in 1574. Silla, the youngest, was an architect, and, assisted by Scamozzi, completed the Teatro Olimpico, upon which his father was engaged at the time of his death and died about 1627. Zenobia married Della Fede, a goldsmith, whose name appears inscribed in the guild at Vicenza.

Before the year 1564 Palladio was in legal documents called "of Vicenza" and "inhabitant of Vicenza." In those relating to the marriage of his daughter he appears as "civis Vicentine," a distinction worthy of mentioning in the days of the Republic.

None of the honours conferred upon Palladio can exceed the publication of his works which was undertaken with much courage and diligence by Ottavio Bertotti Scamozzi, who measured, drew, and restored his buildings. This book contains most interesting engravings and commentaries, showing much learning and scholarship. It embraces four large volumes, of which many editions have appeared both in Italian and French.

Though infirm for a long time, Palladio nevertheless continued to take an active part in the building of his edifices, and when finally the end came it found him at work upon one of his finest efforts, the Teatro Olimpico, finished after his death by his son Silla and Vincenzio Scamozzi.

Palladio's death was a great grief and loss to his loyal native city, which revered him not only for his genius, but for his many other virtues—for he was both amiable and benevolent, and beloved by his workmen.

Principles.

His principles are best exemplified in his buildings, but a striking point about many of them lies in the fact that he was not slavishly bound by his own rules as to the proportions of the classical columns and their entablatures.

Like many another, he was an exemplar of the saying that a genius can be above rules. Although he refers in detail to the various parts of a building and their proportions, he has left no information as to the design and composition of structures as a whole.

In his use of the orders he was full of resource, and no particular method seems to have been peculiarly his own.

It has been held that he was specially in favour of obtaining size and dignity in his composition by including two stories of his façades within one order. This has been said to have influenced English architecture in contrast with the precepts of Vignola which were followed in France; but Palladio employed both methods equally, while he was also fond of marking his ground story with rusticated blocks of masonry, expressing his first floor (piano nobile) by an order, and his upper (or attic) story by flat pilasters.

He also employed the attic story, seldom used by other masters, in lieu of a great crowning cornice.

His style has been defined as a mean between the severe use of ancient forms and the licentious style of those who reject all rule whatever.

Speaking generally, the plans of his buildings were suitable to the requirements of the Venetian nobility for whom they were erected.

The fact that they are not well suited to our present requirements cannot detract from their stateliness and convenience when considered in relation to the age in which they were erected, and the climate of Italy.

The disposition and proportion of his apartments in regard to each other are often exceedingly happy and effective.

Some have found fault with the magnificence and display which are observed in some of Palladio's facades, but here, again, we must remember for whom and for what purpose they were built. His clients were Venetian noblemen, eager to display their power and position by the erection of grandiose buildings, which he provided in his spacious columned vestibules, grand staircases, galleries, libraries, and colonnades.

His architecture was essentially columnar and not fenestral, and his entablatures were proportioned to the column with which they were associated, whereas his predecessor, Sansovino, occasionally employed an entablature disproportionate to the columns, as at St. Mark's Library, in which windows are placed in a deep frieze. In addition to the methods referred to, our master frequently used two orders of different scale in the same facade; one comprising the whole height of the building and the smaller subordinate "order" being only one-half or two-thirds of

* See our issue for March 28.

the larger one. In every case except that of the facade of S. Giorgio Maggiore both orders rise from the same plinth level. In the Palazzo del Capitanio and the Basilica the difference in height between the two orders is as ten to sixteen and a half, while in the Palazzo Valmarano it is as ten is to twenty and a half.

Professor Cockerell attributes a great part of the magnificence of Palladio's buildings to the employment of this principle.

Our master also had a great preference for a pediment to the central part of the principal facade, and says, "In all the houses which I have built in the country, and also in some (very few) of those which I have made in towns, I have always placed a pediment where the chief entrance is, because it makes the principal entrance to the house more conspicuous, and contributes very much to the magnificence and grandeur of the building. This gives the entrance facade a great advantage over the others, as it must for that reason be made higher; besides, it is much more proper to put the arms of the owner there, and they are generally placed in the middle of the pediment."

Columns were sometimes placed on pedestals in order to give additional height, sometimes not so. The pedestals never seem to have been decorated with panels, sunk or raised, although this feature is so treated in Palladio's book. Fluting is generally omitted from the columns, and this was probably due to the fact that they were frequently formed of brick and stucco, materials which were unsuitable for fluting in long lengths.

Palladio's knowledge of the details of ancient Roman architecture was extraordinary, yet his inventive genius was considerable, and we seldom find that he repeated any of his designs. On the contrary, his façades abound with various dispositions of the orders, in addition to which he obtained effect and contrast by the judicious use of plain and rusticated walling and the use of arcades.

His rustication is often excellent in design and scale, and gives considerable character to his buildings, not in an excessive way, as at Florence, but as a set-off to his columns and their entablatures. In the design of his arcades, he appears to have preferred the larger order embracing two stories, with small pilasters placed behind them to carry the floor of the upper gallery.

In these arcades, semi-circular arches usually rest on piers in conjunction with a trabeated arrangement adopted from ancient baths. A favourite arrangement (of the Basilica), however, was one in which he divided the interval between two piers in three parts by small piers, or columns, with an arch only covering the central aperture, a combination which seems to have been copied from some colonnades at Diocletian's palace at Spalato.

In the design of his doors, windows, and niches, simplicity seems generally to have been sought after. Fewness in number and largeness in size was his aim. The openings were generally crowned by pediments, alternately angular and circular; but these were never broken—a rococo feature in which he did not indulge.

On these pedimented openings he occasionally placed reclining sculptured figures, probably copied from Sansovino or Michelangelo.

The entablature to his orders are generally unbroken, but happy effects are sometimes obtained, as at the Basilica, at Vicenza, by projecting the columns beyond the main face of the wall and breaking the entablature around these projections.

In the profile of mouldings he was specially careful; the architraves and friezes were generally plain, the latter being sometimes pulvinated, and his cornices have the consoles and other ornaments carefully centred over each other.

Interior decoration seems to have been somewhat neglected, owing, no doubt, to want of funds.

In regard to his church designs, instead of returning to the regulation forms of heathen temples, he was probably obliged, for ecclesiastical reasons, to keep to the Basilican or Lombard type, and his endeavour was to adapt the Roman orders to this type. The nave, being considerably higher than the side aisle, had to be treated independently of it, and instead of tiers of arches, he adopted a single order of columns placed on a plinth or on pedestals, and supporting an entablature with pediment over. The aisles have their inclined roofs marked with half pediments.

Their proportion of basement to the order which it supports and the attic over, of window to wall space, and the relation of column to entablature and the various parts of the design are excellent.

Palladio had a lofty ideal in regard to architecture as applied to public edifices, for he says that "because they consist of larger dimensions, and that they are beautified with more curious ornaments than private ones as serving for the use and conveniency of everybody, princes have a most ample field to show the world the greatness of their souls, and architects are furnished with the fairest opportunity to demonstrate their own abilities in excellent and surprising inventions."

He then refers to the "fatigue and long watching" he had endured in drawing out the ancient examples, and "hopes that the lovers of antiquity may reap pleasure from the same, and the studious of architecture receive benefit, especially seeing that much more is learnt in a little time from good examples of originals, by measuring of them and by seeing entire edifices with all their parts described on a little piece of paper, than from words," &c.

Bridges.

Leaving aside the wooden bridges which he erected, and dealing with stone bridges, he mentions four special points, viz., the abutments at the banks, the piers in the river, the arches, and the pavement.

He considers the piers should be of an even number, "as well because we see that Nature has produced from this number all those things which, consisting of more than one part, are to bear any weight, as the feet of men and all other animals may convince us."

Such an arrangement is also to be preferred because it leaves the middle of the river free from obstruction, where the current is naturally most rapid, and, it might be added, in which boats would naturally be.

The front of the lower portion of the piers, known to modern engineers as "starlings" or "spurs," *i.e.*, the side that faces the stream are to be made angular, in order that they may divide or break the water, and prevent floating matter from lodging against them.

Palladio produced amongst others a design which was evidently intended for the Rialto Bridge at Venice. It was not carried out, the present bridge being erected in 1588-1591 from the designs of Antonio da Ponte.

Public Buildings.

The arcades surrounding the three sides of the Gothic Consiglio or Town Hall at Vicenza (also known as the Basilica or Palazzo della Ragione) are probably the most important of Palladio's works. Riccio in 1496, Spaventa in 1498, Sansovino in 1538, Serlio in 1539, and Giulio Romano in 1542 were all engaged at various times on the faulty Gothic arcades of the original structure. Finally, fresh designs were prepared by various architects and were submitted to the vote.

Three were chosen, one each by Spaventa, Giulio Romano, and Palladio, with the result that the latter's design was finally adopted by ninety-nine votes against seventeen.

This is the design as executed, and it was commenced in 1550 and completed in 1614. It was constructed in stone brought from Piovene, and this stone has weathered in a remarkable manner, and gives to the building a beauty which Palladio's stucco designs do not possess and will never attain.

It is curious that he himself says very little about the Basilica, except that: "There is another of them in Vicenza, of which alone I have given the draughts, because the porticoes around it are my own invention, and this I make no doubt but that this edifice may be compared to the ancient fabrics and to be reckoned among the noblest and most beautiful buildings erected since the time of the ancients, as well on account of its largeness and ornament as of its matter, which is all hewn stone, extremely hard, joined and bound together with the utmost care."

The hall around which the arcades are arranged is 171 ft. long by 68 ft. wide. It has a semi-circular roof covered with lead, hipped at each end. The ground story supports an upper one by means of vaulting, the upper story to the roof being about 70 ft. By referring to the plan we see at once that the width of the arcade bays is determined by that of the piers of the Gothic hall which they surround, these piers dividing the interior of the ground story into seven compartments in length and three in width. With these measurements (height and width), which could not be departed from, it is easy to see that Palladio had to decide on a design controlled and influenced by these data. He marked each story by an order, the Doric to the ground story and the Ionic to the upper one, these being formed as half columns backing on to a wall of considerable thickness, and their entablature returned back to this wall at each column, thus giving a vertical expression and preventing the squat proportion which would have resulted had the cornices been continued round the façade without a break.

Furthermore, the height of the ground-floor arches on the façade had to be considerably less than the hall, because the entablature of the order occupied some depth, and the arcade had to be beneath this. A statue crowns the balustrade over each pair of columns, and thus an unusual and difficult proportion of bay was cleverly handled. It is in the design of the space between the principal columns that the beauty and originality of this building is found. By referring to the illustration it will be seen that a space approximating a square is contained between the main columns as vertical lines, and the base of these columns and the underside of their entablatures as horizontal bounding lines. It is particularly in his treatment of these that Palladio has shown his skill, and had produced a *motif* which to this day is known by his name. He has filled in this square space with four columns, placed in couples about 3 ft. 6 in. from the main piers, and supporting a cornice from which springs a semicircular arch covering an opening twice its width in height. In the spandrels are circular openings.

The treatment of the angles of this building also shows the master hand. Here he was without restrictions as to width, and he has decreased this by placing the coupled secondary columns nearer to the piers, and by doubling the main columns at the angles or rather, by placing an extra angular three-quarter column which shows on each face.

This diminution of width of bay and the doubling of the columns give an appearance of strength to the angles of the façade which is very pleasing. The basilica is such an important creation that a few words as to its detailed proportion may not be out of place.

The order to the lower story is Doric, consisting of half columns about 2 ft. 8 in. in diameter, attached to a wall about 4 ft. 4 in. thick. The columns are about eight diameters, and the entablature is slightly over a quarter of the column in height.

The smaller Doric free-standing columns to this story have the same proportion as the larger, but they have a circular base, no doubt with the intention of preventing inconvenience to pedestrians.

These small columns have a cornice, in height about one-eighth that of the columns, of the type shown, and from this springs the semi-circular arch.

The upper story is ornamented with a large and small Ionic order, both placed on the same continuous pedestal about a quarter of the height of the larger columns, these latter being 2 ft. 3 in. in diameter, and $8\frac{3}{4}$ diameters in height. Palladio has not here followed his own rules nor those of Vitruvius, who says "that when the columns are placed over each other, the upper one should be a quarter less in diameter than the lower," whereas in this case it is only one-sixth. A balustrade, one-fifth of the Ionic order in height, crowns the façade.

The height of the Ionic entablature is about one-fifth of the height of its column. The smaller free-standing columns of this order are 1 ft. $2\frac{1}{2}$ in. in diameter and 8 diameters in height. The capitals are of the Grecian type, and have circular plinths and cornice similar to that on the lower story. The method of vaulting the arcades is shown in the illustration.

This building must rank as Palladio's masterpiece; the peculiar charm it now possesses is also much enhanced by the beautiful weathering of the stone.

The Teatro Olimpico at Vicenza is a good example of Palladio's skill in planning.

In this building he was not in any way bound by precedent, as suggested by some who have only studied his work superficially On the contrary, he well knew how to accommodate the principles of classic architecture to

the special circumstances of his own designs; modifying according to need the proportions, forms, and distribution of the parts.

Palladio's studies in Rome among the classic ruins, and also his excavations of the Berga Theatre at Vicenza, must have well equipped him for designing this building. He also had made a special study of Vitruvius, and the elaborate directions laid down by that author, indicating how the ancients planned these particular buildings.

When, therefore, the Academy of Vicenza decided on constructing a building in which plays of the classic authors might be given, it was to Palladio, whom they regarded as a high authority on the subject, that they naturally turned.

The work was begun on May 23, 1580, in Palladio's presence, but he was not destined to see its completion, for he died on August 19 of the same year. In gratitude for his work we are told that the Olympic Academy nominated his son Silla to superintend the work. The theatre was not entirely completed till 1584.

The plan and general distribution leave no doubt that Palladio kept the form of the Roman theatre in view, but that, owing to the peculiar and restricted shape of the site, variations had to be made, the most notable being the semi-elliptical auditorium, which takes the place of the semicircular plan of the Romans. Scamozzi has been at some pains to inquire into the general principles of proportion adopted, in which, owing to the novelty of the elliptical plan, he had to depart from the proportions of Vitruvius. His remarks are certainly ingenious and convincing, but cannot receive a detailed notice here.

The building proper occupies a site 123 ft. long by 75 ft. wide. It will thus be seen that the space originally at disposal does not include all that shown in the plan, but only the auditorium and the stage.

The extra accommodation, including the three rooms to the left and the portions behind the permanent scene, were acquired afterwards.

The elliptic form, or rather that produced by portions of three circles, was decided upon as being most economical for the seating of an audience desirous of hearing and of seeing perfectly.

Attention may be directed to the radiating streets behind the scene, which has a length of about 70 ft.

It is constructed in stone, and is composed of two orders of Corinthian columns placed one over the other. The upper columns are not isolated like those below, but are semi-circular in plan and attached to the wall. Their pedestals project over the lower columns and support statues, forming a very pleasing feature.

Above the upper order of Corinthian half-columns is an attic story with small pilasters over the axes of the lower columns. In front are placed statues, while between them are square panels filled with sculptures representing the labours of Hercules executed by well-known sculptors.

Between the columns of the ground and first stories are placed niches occupied by statues and framed in with pilasters, entablature, and pediments, triangular or segmental. The centre of the scene has a large open archway of semi-circular form, springing from the cornice of the lower story, and there are smaller square-headed doorways on either side, formed under the entablature of the ground story.

The return walls of the scene, which are at right angles to it, are treated in a somewhat similar manner to the front. On the ground floor is placed a doorway centrally to each return, having on each side a semi-circular-headed niche, above which are slightly sunk panels filled with bas-reliefs.

The first floor has a central opening, protected by a balustrade. Above the podium, or enclosing wall of the auditorium are constructed the seats in thirteen tiers. They are about 21 in. in width and 15½ in. in height. Above the top row of seats is placed a Corinthian colonnade, cleverly contrived to hide the irregularities of the site.

The openings of the permanent scene, central and side, form entrances to the interior scene constructed as streets radiating therefrom. These streets are built in perspective, with buildings on either side, the line of sight, or horizontal line, being half-way between the stage level and the upper tier of seats of the auditorium.

This construction in perspective was designed by the architect Scamozzi.

The ceiling is flat, and extends without interruption over auditorium and stage, allowthe voice to travel without hindrance.

Town Houses.

Some of Palladio's most important designs were erected in his native town of Vicenza. They were mostly built in brick faced with stucco, which has now fallen away, and, in consequence, the designs suffer from having been executed in such poor materials.

Our architect has been blamed for this by certain critics, who evidently consider that he was responsible for the depth of his client's purse. We should rather rejoice that, in spite of the materials at his command, he should have been able to produce such excellent results.

Palladio introduces the subject of town houses as follows. He says, "I am sure that they who shall look upon the buildings I am going to give the draughts of in this book, and they who know how hard it is to introduce a new way, particularly in the art of building (in which every one presumes to be knowing) will think me very happy that I have met with persons who were generous, judicious, and reasonable enough to hear and approve my reasons."

The Palazzo Chiericati in plan, has a great gallery or portico, which extends the whole length of the principal front on the ground floor, and is carried up on the two wings to the first floor, the central portion of which is walled in and forming the hall. The front of this building has two orders, the Doric for the ground floor, the Ionic for the first floor, and is an example of treatment which Palladio often favoured. This is to be remarked, because his name is generally associated with the treatment of an order embracing two stories in height.

In Leoni's edition of Palladio's "Architecture," this building is shown with Ionic order of the central portion of the first floor as pilasters, instead of half-columns, but most will agree that the substitution of pilasters would have deprived the façade of much of its interest.

Another feature is the continuous pedestal, or stylobate, upon which the lower order rests, forming a solid base or support to the whole structure. The Doric columns are of sturdier proportions than usually adopted by Palladio, being seven and a-half diameters in height. This sturdy proportion was probably used because these free-standing columns supported an upper story, the central portion of which was solid. These and other deviations from the master's own precepts are interesting as showing how he altered them to suit the circumstances of the case.

The upper story is treated with the Ionic order, resting on pedestals which have no base.

In Palladio's book none of the statues or vases are shown which are seen as crowning the structure and carrying up the vertical lines of the columns. It is doubtful if these additions improve the design, certainly the attenuated vases have a very unpleasant effect.

Although a large part of the building appears to have been erected during his lifetime, it was only finished a considerable time after his death, viz., towards 1700.

The Palazzo Thiene like so many of the designs, was only partly finished. In plan it consisted of a central square courtyard of 84 ft. 6 in., surrounded by a rusticated arcade, beyond which are the various rooms; the size of the whole site being 190 ft. by 176 ft.

The illustration shows another method in which a rusticated lower story with flat arched windows, surmounted by semicircular arches, supports the first floor, ornamented with composite pilasters on pedestals. The windows to the first floor have small three-quarter Ionic columns with entablature and pediment.

This is an excellent composition, the reserved use of the order for one story only being very happy.

These first-floor windows have rusticated shafts resting on pedestals, between which are placed balusters; a composition probably designed to lead by an intermediate stage from the masculine treatment of the basement. In Leoni's drawing the main entablature is shown at about one-fifth of the height of the column, which is Palladio's usual proportion, whereas in execution it has been increased to one-fourth its height, our architect evidently taking account of the narrowness of the streets and the consequent foreshortening of the upper mouldings.

The courtyard is equally fortunate, a similar treatment being adopted, except that the necessary openings are left for the arcading between the piers. The attic here has also small windows lighting the rooms of the upper story.

The finished portion was adorned with sculpture by Alessandro Vittoria, Bartolomeo Ridolfi, and with paintings by Anselmo Canera and Bernardino India, both the latter being of Verona.

The Palazzo Valmarana was erected by the Conti Valmarana, as Palladio says, "not only for their own honour and convenience, but also for the ornament and glory of their country," an idea which might be more often followed by rich men in these days. The plan shows that the house is divided into two parts by a central court, and behind is shown a large garden, 120 ft. by 68 ft. 6 in. wide. Only the front block of this important façade has been executed. The stables are also placed in rear of the site.

The ground-floor apartments are vaulted, and the upper ones ceiled at a height equal to their breadth. It is curious to observe that in Leoni's edition the site of this building is shown as rectangular on plan, whereas in reality the front wall is *not* at right angles to the side walls. There were two ways of treating this façade, viz., either to make the front wall at right angles to the side walls, in which case it would have to be set back from the general line of the other buildings in the street, or as Palladio arranged it, of making it line up with the general building frontage, allowance being made for the difference of shape in the front rooms. In choosing the latter arrangement Palladio showed his good taste, and left it as a legacy for architects of all times. Many modern buildings have been spoilt by neglecting to adopt this principle in dealing with awkwardly-shaped sites. The method of stepping-back the façade in order to make rooms square is very unsatisfactory, and has only to be seen to be at once condemned. The façade of the Valmarana Palace has been the subject of much criticism. It shows another treatment, having an order of composite pilasters embracing two stories in height and an attic-story over them.

The façade above the base is in brick and stucco. The main entablature is one-fifth the height of the column, and the order rests upon projecting rusticated pedestals, one-quarter of the height of the pilasters. The secondary order of the Corinthian type, which marks the ground floor, rests upon the same pedestal as the larger order, an arrangement which many critics have condemned.

This order is of half pilasters backed against the main order and is not a happy arrangement. The entablature to this order is broken at each intercolumniation against the main pilasters. Above the main entablature is an attic the height of which is one-quarter that of the pilasters.

The upper windows have balconies of small projection. It will be seen that the main pilasters do not terminate the façade in a manner which might be expected, the secondary order being doubled instead and made to support statues above its cornice. As a principle of design, this does not appear correct, the length of the façade being thereby apparently diminished and the framing of the whole design unpleasantly affected.

The Palazzo Barbarano is interesting in many ways, because Palladio has given his original design, and also that which was actually carried out. It has an entrance leading to a large columned hall beyond which is an open court. As to the façade, each story has its own order, whereas in the original design one Corinthian order of semi-columns resting on a podium was taken through two stories.

There is no doubt that the second or executed design is immeasurably superior. On the ground floor the wall space between the Ionic half columns is rusticated and the windows have flat arches, the abundance of wall space giving the necessary strength which a ground story should possess. Exception might be taken to the impost moulding upon which these arches rest as being unnecessary. The upper story is in a most ornate manner. The windows have architraves and consoles supporting pediments, alternately triangular and segmental, upon which are placed reclining figures.

The podium to these windows is pierced with a balustrade, while the Corinthian columns are unfluted and rest upon a continuous block immediately over the cornice of the lower order. An attic plainly treated with square window crowns the whole building.

The illustration shows the angle treatment of the Ionic order, which is peculiar.

Although built in brick and stucco, this palace must always remain a triumph of art over matter. The meanness of the material used is completely lost sight of in the superior excellence of a master design.

In execution this has been considerably altered. The original design was for a regular façade of seven bays with a central opening leading into a columned vestibule. Additional land appears to have been acquired, which throws the principal entrance out of the centre.

The Ionic columns to the front façade have a height of 9 diameters, those of the courtyard at the back $9\frac{1}{3}$ diameters, and those to the entrance $8\frac{1}{2}$ diameters, these latter having to support a solid vault. Palladio herein followed Vitruvius, as the latter mentions in his Book I., Chapter 2, "That variations may well be made from the regular proportions, in order to suit them to special circumstances." The Corinthian columns to the first floor are also raised upon a plinth, in order to prevent their bases being hidden by the projecting cornice of the lower order.

The Palazzo Porto faces two streets, and the front portion only was executed. The entrances from each street led through columned halls to a great central courtyard, open to the sky, and surrounded by a colonnade of Composite columns embracing two stories in height, and crowned with entablature and balustrade. The passage on the first floor is supported on pilasters attached to the backs of these tall Composite columns.

Palladio mentions Paul Veronese as the artist employed to paint portions of the interior. The exterior is certainly one of the most pleasing, and resembles that already shown in the Palazzo Thiene. A rusticated basement, with square-headed windows and circular relieving arches, with carved keystones, supports a *piano nobile* of attached Ionic columns and entablature. Between the columns are square-headed windows surrounded by an architrave moulding, and provided with consoles carrying pediments alternately segmental and triangular.

Over these pediments Palladio designed reclining figures, but the view shows that only three groups are really executed, a central and two angle ones.

This omission helps the façade, which might otherwise appear too complex and crowded. There is also another important difference between Palladio's design and that which was actually carried out.

In the statues which decorate the attic story he shows a range of eight, resting on the top of the attic pilasters, whereas there are only four, and they are placed immediately above the cornice in front of the pilasters. This appears an infinitely better position, for there is something dangerous looking and gymnastic about free-standing sculpture at a great height from the ground.

The Palazzo del Consiglio, also known as the Palazzo del Capitanio, the Prefitizzio, Municipio, Loggia Bernarda, and Palazzo Communale, is not mentioned in Palladio's book, and must therefore have been erected after its publication. It is comparatively a small building, a portion only of the original design, and is situated opposite his masterpiece in the Piazza de' Signori. Thus we can see at a glance one of his earliest and latest productions.

The Composite half columns, without pedestals, are carried through two storeys, and their entablature breaks round them, and is crowned by a balustrade. The attic story over is set well back, and does not interfere with the general proportions of the façade, which are excellent. The lower portion forms a triple arcade, and the upper story has windows and projecting balconies supported on triglyph brackets. The windows of this story cut into the architrave of the main entablature, a defect in the design which is hidden by the outside blinds. The view shows the dilapidated condition of this façade, the brickwork of the columns showing where the plaster has fallen off.

The treatment of the side façade differs from the front, the main order not being carried round, and is not successful.

The Casa del Diavolo, also known as the "Antica Posta," the "Casa Porto," and other names, is an unfinished design. Two bays only of the façade have been completed, which indicate the immense scale adopted. Half columns of the composite order rest on deep pedestals, the cornice of which forms the impost of the principal gateway.

These columns are 10 diameters in height, and from their abaci sculptured festoons, bound with oak leaves, stretch from one capital to another. The windows to the first storey are crowned with pediments, alternately segmental and triangular, and have projecting balconies with balustrades supported by consoles.

The entablature of the main order has windows in the frieze, in the manner of Peruzzi, to give light to the small rooms of the upper story.

The House of Palladio was erected in 1556. There appears to be no evidence that Palladio ever resided in it. At the same time, as an instance of one of his smaller works, which he might have designed for himself, it is an exceedingly interesting piece of work. The plan consists of a front and back *corps de logis*, with an open area between, to the side of which is the staircase.

The ground story has Ionic columns with entablature one-fifth of their height. A large centre semi-circular-headed opening forms the chief entrance, and has reclining figures in the spandrils. Smaller flat-headed openings are on either side. The first story has Corinthian pilasters of a rather stumpy proportion, and above is an attic story crowned with a modillion cornice. The blank space in the centre of the first story is probably caused by the fact that the light for this room is obtained mostly from the interior court.

Country Houses.

Palladio introduces the subject of country houses with a few preliminary remarks on situation and the various compartments in these words :—

"As certainly 'tis highly creditable and convenient for a gentleman to have a house in the city where he is obliged sometimes to reside; so perhaps he may receive no less pleasure and advantage from a house in the country, where he passes the rest of his time in seeing and improving his own possessions, in augmenting his substance by industry and agriculture, where, by exercising himself either in walking or on horseback—which are only proper for the country—he preserves his body strong and healthy; and where, in a word, the mind, being over-laboured by the fatigue of the city, will be singularly recruited and re-created."

The open position and extended space available are then dwelt on in comparison with town sites, and the necessity for finding "commodious and healthy places" is referred to at some length.

The Italian sixteenth-century country house had very different requirements from one in modern England. In all of our master's draughts a central "corps de logis" is provided for the master and his family, and this has generally a frontispiece of columns, either flush with the front wall or in advance, and crowned with entablature and pediment.

On either side are the wings containing the steward's apartments, the stables, the stores, and granaries.

Such dependencies in England are generally placed at some distance from the house, and often do not form part of the group. Palladio's types of country houses may be divided as follows in regard to plan :—

Type 1.—Block type (as the Villa Capra) without wings.
Type 2.—Central block (or *corps de logis*) with quadrangle.
Type 3.—Do., do., with straight wings.
Type 4.—Do., do., with quadrant wings.
Type 5.—Do., do., with returned wings.

The kitchen and offices were invariably placed in a basement or lower story, and an upper story is often provided and used for granaries. Only a few typical houses can be referred to.

The Villa Capra—also known as the "Rotonda"—was originally designed for Signor Paolo Armerico. He appears to have been of a cultured disposition, for "after having travelled a long time to improve himself, and being come to settle at last in his own country, after the death of all his friends, chose his abode at a country house he had on a hill."

It is situated at the eastern base of Monte Berico, near Vicenza.

Palladio seems to have been much impressed by the beauty of the site, for he goes on to describe how it is surrounded by several hills "that seem to form a great theatre." This is probably the best known of all Palladio's works, and owes much to its open position and to the excellent views on all sides. It has a central hall 40 ft. in diameter, carried the whole height of the building, which was to receive its light by means of circular windows in the dome. Four angular staircases bring the central portion to a square, around which are placed the living apartments. On each of its four façades is an Ionic colonnade projecting about 14 ft., and having an internal width of about 34 ft.

These appear to have been placed, because of the excellent views to be obtained on all sides.

The basement, containing the kitchen, &c., extends under the whole of the house, "for the use and convenience of the family," as Palladio quaintly puts it.

The ground floor is raised about 11 ft. 6 in., by means of wide flights of steps, giving access to each portico. For a sunny climate the Rotonda is undoubtedly a very excellent and suitable design, the central hall forming a convenient retreat from the heat of the summer sun, while the projecting porticoes are so placed as to catch every available ray of sunshine at different periods of the day, meanwhile protecting the interior of the house by means of their deep shadow. The hall has a projecting gallery at the upper level, giving communication to the first-floor rooms.

The bedrooms, however suitable for the period and country, would undoubtedly be dark and inappropriate in England, as also the passages leading from the central hall to each portico.

Inigo Jones's references to this house are not of great interest. He remarks that it "stands very solid and firm," and "that a great sum of money must have been spent in the building of this house and especially for the terraces," and also that in his time "the lanthorn at the top of the cupola is not set on, but a net to cover the top hole to keep out the flies"; also that "the tyling does not look well, considering the richness of the statues and the beauty of the building."

The exterior view shows the somewhat dilapidated condition of this building, and also that the windows in the dome are not executed, the light being obtained from a very small lantern at the top of it.

In spite of these drawbacks, this design has exercised an extraordinary fascination for European architects, who have imitated it again and again. The first imitation in England appears to have been Mereworth Castle in Kent, by Colin Campbell the architect. It was also copied by Lord Burlington in 1729 in his villa at Chiswick (now used as an asylum) and which belongs to the Duke of Devonshire, and on a larger scale for the Earl of Westmorland at Foot's Cray Place, Kent (now occupied by S. J. Waring, Esq.), and also at Nuthall, Notts. On the Continent it served as a model also for the original Château de Bagatelle, near Paris, also for the Château de Marly-le-Roi (since destroyed), a building which was erected for Louis XIV. by the architect, J. H. Mansart, in 1676.

The sculptor Canova also built a house at Inverigo in Italy after the same design.

The house at Maser has a central advancing block of two stories in height, with straight arcaded wings, returned backwards on each side, and connecting the centre with the stable and kitchen. The whole forms an extent of about 280 English feet in length. The courtyard at the back is level with the first floor of the main building. It has a semi-circular recess ornamented with Ionic pilasters, statues, sculptured cornices and festoons, and a small basin through which running water passes into a lake.

The front view gives a very good idea of the setting of many of our master's country designs, and also shows one of the weak points of Italian country architecture, viz., the poor and ineffective treatment of the chimneys, which in this, as in many cases, appear merely as circular flue pipes without any attempt at grouping or harmonising with the architecture. In most of Palladio's own drawings no chimney stacks are shown. This view also shows the Ionic colonnade of the front, with

an unusual arrangement of broken cornice and central window.

The house at Meledo for the Conti Francesco and Ludovico de Trissini, has a plan of an unusual and ambitious kind, being a combination of types 1, 4, and 5.

The central block resembles the "Rotonda," near Vicenza, and has quadrant wings. In front of these are other returned wings. The main block was to be about 120 ft. by 90 ft., and to have a central circular hall about 40 ft. in diameter surrounded by various rooms and staircases. A columned portico of the Corinthian order is on each face, placed there because "every front of the house has a very fine prospect." Palladio describes its situation "as very fine, being on a hill that is washed by a little river, in the midst of a spacious plain, and on a well-frequented road."

The house proper is set well away from the lower porticoes containing the farm offices by means of the quadrant galleries—a great improvement on some of the smaller plans, in which the granaries and farm offices are in immediate proximity thereto.

The cupola crowning the whole forms a fine terminal to the group, but in execution these windows have been omitted. The kitchens, as usually seen in smaller plans, were in the basement and the granaries in the roof.

Churches.

Palladio refers in his writings to the ancient temples in Rome, and elsewhere in Italy, and dwells on the importance of buildings raised for devotional purposes.

He then speaks strongly in favour of the circular shape, because it is "alone among all figures simple, uniform, equal, strong, and most capacious. . . . the extreme in every part being equally distant from the centre; it is, therefore the most proper figure to show the unity, infinite essence, uniformity and justice of God."

The cruciform plan is referred to as commendable by Palladio, who says, "In this form I built myself the church of S. Giorgio Maggiore in Venice."

Il Redentore, Venice, situated on the island of La Giudecca, and consecrated to the Redeemer for the deliverance of the city from the plague which ravaged the town in 1576, was intended to express the devotional idea. The plan is in the form of a Latin cross, in the long arm of which are three chapels formed in the aisles on each side of the nave, which is twice its width in length. A dome crowns the crossing, having its base brought to a circle by pendentives.

The sanctuary, at the south end of the building has a semicircular screen of Corinthian columns and contains the principal altar, while the transepts are also of semicircular form. Behind the screen is placed the choir, severely plain, agreeing in treatment with Capuchin ideas.

The walls of the interior are ornamented by an order of Corinthian half columns coupled between the chapels, and have two niches between them. The arches to the side chapels are semicircular, and rest upon impost mouldings supported by Corinthian pilasters. Each chapel is crowned with an internal semicircular vault, corresponding with the arch to the nave. The height of the nave vault, which is of brickwork, and rises from the main entablature, is about 65 ft., and in this semi-elliptical vault are semicircular windows lighting the nave.

The façade has a main order of the Composite type, expressing the interior nave. This order is formed as half columns, the angles being formed as piers and they support an entablature and pediment. The pilasters throughout are diminished, and have an entasis in the same manner as the columns.

This order is raised upon a stylobate, in the height of which is managed the principal flight of steps, which is as wide as the nave. On either side of the central space the side chapels are designed as wings, ornamented with Corinthian pilasters starting from the same level as the principal order. Half columns of this same order flank the central door of the church and support entablature and pediment, and are also carried round the lateral façades.

On either side of the central doorway are niches for statues, flanked by pilasters supporting entablature and pediment. Above the walls separating the side chapels are taken masses of masonry, forming buttresses to resist the pressure of the nave vault.

S. Giorgio Maggiore differs principally in the aisles, these taking the place of the side chapels of "Il Redentore." The church is dated 1556, but the façade was added by Scamozzi in 1610.

The plan is cruciform, consisting of a nave 40 ft. in width and aisles about half that width.

The length of the nave up to the crossing is about twice its width. The transepts have semicircular ends, and over the crossing is a dome constructed internally of brick and externally of timber and lead. One bay beyond the crossing is planned similarly to the nave, and at this point the aisles are stopped, and the sanctuary and chapter-house are continued with out aisles. In the interior a composite order of columns and pilasters placed on pedestals, a quarter of the column in height, ornament the walls.

Between the nave columns are semicircular arches, resting on the entablature of the smaller coupled Corinthian pilasters. The soffit of these arches, which extends over the width of two pilasters, is of considerable depth, and has a much bolder and better appearance than the thin arch in "Il Redentore." The nave vault is 70 ft. high.

The external façade is of a very similar type to that of "Il Redentore," but a better proportion is obtained by raising the principal order on a pedestal and designing the minor order without one.

The main order is Composite, resting on pedestals, which in their turn are placed upon a plinth about 3 ft. in height. The seven steps at the entrance to the church are formed in the depth of this plinth.

This church owes its picturesqueness to its position on an island of its own name, facing the eastern end of the Grand Canal, opposite the Piazza of St. Mark, from which a splendid view of it is obtained.

The little church at Maser is isolated in position at the end of a long road. The plan differs from those of the larger churches already described at Venice. It is circular, having an internal diameter of 40 ft., and is of the type Palladio admires and describes in his fourth book.

A wide flight of steps leads to a projecting portico of the Corinthian order, with two lateral arches and a central doorway leading into the church. The length of this portico is nearly two-thirds of the diameter of the church, same proportions as in the Pantheon at Rome.

A dome crowns the whole, light being admitted through a somewhat high lantern.

The illustration shows the festoons suspended between the capitals—a feature condemned by many. The two small bell turrets on either side crown the small staircase.

The façade of S. Francesca della Vigna, erected in 1562, bears a remarkable resemblance to that of S. Giorgio Maggiore, to which it may be compared, but to which it is inferior, especially as it repeats the defect of interrupting the stylobate, by the principal doorway, a better treatment being adopted at "Il Redentore." Another fault is in the management of the orders, for too great a contrast is obtained by starting both the principal and subsidiary order from the same base, the treatment at S. Giorgio being preferable.

Palladio prepared five designs for the façade of the Church of S. Petronio at Bologna. This church was commenced in 1390, in emulation of the Cathedral at Florence; and some idea of its size can be imagined when we find that its area, if completed, would have rivalled St. Peter at Rome. The façade has remained uncompleted.

The difficulty Palladio was contending with was the application of a classic façade to a Gothic structure, and it is interesting to see how he endeavoured to overcome these difficulties. Time, however, will not permit their discussion here, but I am able to show you his fourth design.

The Convent of La Carita at Venice (now the Accademia delle Belle Arti) was partly executed during his lifetime, but a fire afterwards destroyed a large portion. The plan shows an outer atrium, 60 ft. long by 45 ft. 6 in. wide, of Composite columns, two stories in height, from which is reached the cloister court, 86 ft. by 70 ft. This latter court is surrounded by three stories of arcades ornamented with the Doric, Ionic, and Corinthian orders. As in so many of Palladio's buildings, brick is the chief material employed. It is covered with stucco, the bases, capitals of columns, and upper parts of cornices being in stone.

Of the atrium of Corinthian columns forming part of this building Sir Henry Wotton says, "Mine eye hath never beheld any columns more stately—of stone or marble—for the bricks, having been first formed in a circular mould and then cut, before their burning, into four quarters or more, the sides afterwards join so closely, and the joints concentre so exactly that the pillars appear one entire piece, showing how, in truth, we want *art* than *stuff* to satisfy our greatest fancy."

Influence.

Perhaps few men, with the exception of Vitruvius, have exercised more influence in matters architectural than Palladio. This was chiefly effected by means of his great literary effort, published in four books in 1570, of which countless editions have been published, and which has been translated into almost every European language. The most interesting to English students is the third edition, published in 1742, as it contains the notes by Inigo Jones taken from his manuscript in Worcester College, Oxford. Mention should also be made of the valuable Burlington-Devonshire Collection now in the R.I.B.A. Library. These drawings of ancient buildings and of his own designs are believed to be by Palladio himself. They show his careful study of ancient buildings in Rome and elsewhere, and from a perusal of them we may agree with Sir Joshua Reynolds that "the greatest natural genius cannot subsist on its own stock; he who has laid up no materials can produce no combinations. The more extensive his acquaintance is with the works of those who have excelled, the more extensive will be his power of invention."

De Quincey considers "that the style of Palladio has a propriety which must have facilitated its propagation, a medium between a vigorous severity and licentious anarchy of those who refuse to recognise rules, which rules, of course, allow of exception."

This Palladian manner includes the results of the efforts of others in the revival of Classicalism—viz., Bramante, Peruzzi, Vignola, Scamozzi, and Serlio — Palladio's contemporaries.

It expressed a revolt against the licence both of composition and ornamentation into which the architecture of his time had fallen. Palladio's art does not meet with universal laudation. To some "it is dull and lifeless, dominated by scholasticism, and regardless of considerations of utility and convenience"; but these charges cannot, in the majority of cases, be held as proved against our master himself, but rather against his unsuccessful imitators. Many of Palladio's works were of a monumental character, in which the qualities of impressiveness and grandeur outweigh to some extent the mundane considerations of less important buildings in which the element of use predominate over other considerations. In important public buildings the æsthetic quality should prevail. There is no doubt, however, that he was fascinated by the splendid proportions of the buildings of ancient Rome, and that on occasions some of his designs were too imposing for their purpose.

Reproductions of the stately edifices of Rome were not entirely in accord with the needs of the sixteenth century, and especially was this so in climates other than that of Italy. An example of this is to be found in the villa at Chiswick, erected by Lord Burlington, and of which numerous copies exist.

Undoubtedly Palladio possessed a power of producing great simplicity united to grandeur, which can be most clearly appreciated in the façade of the Thiene Palace. Probably in no particular has his influence been so marked on English buildings as the excessive height which he gave to his apartments. In dealing with this, he observes that in rooms with a flat ceiling the height of the apartment should be equal to its breadth. It was the endeavour of the seventeenth and eighteenth-century architects to follow these proportions, which, although of value in a hot climate like Italy, were totally unsuited to that of England.

In vaulted, square apartments he held that the height should be a third more than the breadth, but in those whose len[illegible]eeds their breadth, a height proport[illegible] length and breadth together found "by joining both the l[illegible] and breadth into one line, [illegible] in the middle will give the arch." These pr[illegible] largely by English [illegible] Gibbs, in his bo[illegible] adopts them.

Thus hard-and-fast rules were applied to cases which should be designed for the special use to which apartments were to be put, resulting in the lowering of architectural design to mere rules, without regard to the essential quality of fitness and propriety.

On the Continent Palladio is held by some to have exercised a certain influence, and, according to Quatrèmère de Quincy, became the most universally followed master in all Europe, and in some sort the chief of the modern school in civil buildings.

In Germany it seems certain that little influence was felt, for that country was much indebted to other Italian masters, and even to France.

In England during the Elizabethan and Jacobean periods the orders of architecture had been used without any special reference to recognised proportions or rules, but according to the will and fancy of the designers, and although many delightful and pleasing combinations were effected, there is a want of stateliness and harmony about their application, which was altered by the introduction of Palladian measurements by Inigo Jones, the great English architect.

Inigo Jones (1572–1652) was the pioneer of Palladian architecture in England, and it must be confessed that no student so thoroughly studied his master's works as he did. His journeys in Italy and the notes on his own copy of Palladio's book show that he went about his task in no half-hearted way, but carefully examined each building. He became, in short, saturated with Palladianism, which he naturalised in England, and through him Palladio became the great master of the English fully developed Classic Renaissance, or, as it is sometimes called, Anglo-Classic style.

The change introduced in architectural style by Inigo Jones' use of the Classical Orders of architecture was extraordinary in its results and far-reaching in its effect.

He was invited to Copenhagen by the King of Denmark, but he returned to England in the train of the wife of James I. Afterwards, he left everything for another visit to Italy in 1612. Palladio's influence on English architecture was therefore, through Inigo Jones, paramount, and it must be a matter for regret that, through the intervention of the Commonwealth, Jones's most important design —the great palace at Whitehall—was never completed.

The Banqueting House (afterwards the Chapel Royal and now the Museum of the United Service Institution) in Whitehall was the only part of this magnificent scheme which was carried out. This masterpiece shows the skill with which Inigo Jones, although working on the lines of his Italian master, gave to his designs that English character for which they are distinguished. The extraordinary amount of variety which he has obtained is remarkable, for no two adjacent columns are alike except the two central ones, the others, either by coupling or by making them three-quarter or half columns, are all different on each side of the central axis of the building. There is a sobriety and dignity about the whole building which well expresses Palladio's methods of design.

It was in the arrangement and design of the "Court Masques" of the Stuarts that the genius of Inigo Jones first found a field for the display of his Palladian principles, and it was in the interior decoration of his best works that he showed his extraordinary knowledge of architectural detail. Palladio's buildings were mostly shells in which the ornament was lavished on the exterior. Jones, however, carried the details of the style throughout the interior fittings, and excelled in such features as doors, windows, and chimney-pieces. His deeply coffered ceilings in compartments it is said were introduced from France, but they accord perfectly with the bold style of his architecture.

Among others of Inigo Jones's works which shows Palladian influence may be mentioned the river façade of Greenwich Hospital, executed by Webb, one of his pupils. In this building the two stories are included under one huge Corinthian order. York Water Gate, London; St. Paul's, Covent Garden; houses in Lincoln's Inn Fields; Chevening House; portions of Wilton House, may be mentioned as other typical examples.

Stoke Park, erected in 1630-1634, shows very direct influence, especially in the plan. The central block, or *corps de logis*, has semi-circular wings as colonnades, with a library and chapel at either end. This type of plan is one of many erected or designed by Palladio in the neighbourhood of Vicenza, several of which must have been seen by Jones during his visit to Italy.

The enthusiasm of Lord Burlington (1695-1753) for Inigo Jones is well known, and it is recorded how a design for a gateway by the latter was given to Lord Burlington by Sir Hans Sloane, who had it removed from Beaufort House, Chelsea, to Chiswick House, where it may still be seen.

Lord Burlington paid many visits to Italy, and his life there among the artists of the day seems to have given him an extraordinary liking for and interest in the works of Palladio and his school. His collection of drawings by Palladio, already mentioned, and of works by other artists of the period, must have helped very much to have popularised the art of Palladio.

Giacomo Leoni was brought over to England by Lord Burlington in 1715, especially, it would appear, to help in the translation of Palladio published in that year. Remaining in England he executed a number of important buildings, such as Latham Hall, Moor Park, &c., which must have influenced contemporary architecture.

The fully-developed English Renaissance architecture was therefore given its first great impulse at the commencement of the seventeenth century by Inigo Jones, who founded his style on that of his great master, Palladio. Jones, however, gave to them an English character, attempting to make them, in his own words, "solid, proportional, according to rules, masculine and unaffected." This tradition was continued without interruption to the close of the eighteenth century by a body of English architects who were in a general way influenced thereby.

To trace this progress step by step would take us beyond the limits at our disposal; but a glance at a few of the principal architects and their works will help us to understand the development.

John Webb (pupil and nephew of Jones) was responsible for Amesbury House, Wiltshire, in the Palladian manner, and Dr. Henry Aldrich erected the Peckwater Quadrangle of Christ Church, and the church and campanile of All Saints, Oxford.

Sir Christopher Wren was born in 1632, or twenty years before the death of Inigo Jones, in 1652.

The amount of work executed by him, and the influence on him of Palladio and Inigo Jones caused him to leave a number of buildings which have acted as models for succeeding generations of architects.

Besides St. Paul's, London, which bears the impress of Palladio in the sturdiness of its conception, Wren was responsible for the building of some fifty-three churches in the City of London between the years 1670-1711. In most of these there is discernible the influence of the Palladian ideals, and Classical columns and their entablatures are used in many novel ways. Wren carried out the Sheldonian Theatre, Oxford, a portion of Greenwich Hospital, Chelsea Hospital, a portion of Hampton Court Palace, and Temple Bar, London (now removed to Theobald's Park, Herts), all of which are examples of the application of Palladian principles to various types of building.

In the eighteenth century a great number of country houses were erected in England in which the traditional plans of Palladio, imitated and improved upon by Inigo Jones and others, were erected. The pages of the "Vitruvius Britannicus," by Colin Campbell, furnish plans and views of many of the most important houses erected during the century and form an eloquent tribute to Palladian influence.

Rainham Hall in Norfolk, and Castle Howard, by Sir John Vanbrugh, are important examples, as are also Kedlestone and Stowe House by Robert Adam. In some cases, as at Kedlestone and Holkham Hall by W. Kent (1730), there are four quadrant wings. Similar types of plan are shown in Palladio, and must have influenced English architecture, as at Stoke Park, already mentioned. The peculiar Italian method of treating the ground floor as a basement story for the kitchens and offices, and placing the principal apartments on the *piano nobile* or upper floor, is carried out in most of these buildings. In fact, the peculiarities of the Palladian style, and its inappropriateness when unaltered to suit the English climate, were referred to in strong terms by the satirists of the day.

Symmetry and grandeur were the qualities which predominated in eighteenth-century architecture, due in a large measure to the disciples of the Palladian school.

Nicholas Hawksmoor (1666-1763), Colin Campbell (died 1734), Sir John Vanbrugh (1666-1726), James Gibbs (1683-1754), Thomas Archer (died 1743), William Talman (died 1715), the Earl of Burlington (1695-1753), Kent (1684-1748), and Robert Adam (1728-1792), stand out pre-eminently as the followers of Palladio and Inigo Jones and as the developers of the truly national elements of the English Renaissance.

Sir William Chambers (1726 1796), by his writings, and especially his "Treatise on the Decorative Part of Civil Architecture," carried on the traditions of the Anglo-Palladian school, and objected to the Greek revival of architecture, which was then beginning to be felt.

Thus, till within a century ago, the school of Palladio and his English followers was bound up with the traditions of English architecture. In the nineteenth century, tradition being broken up, the age of revivals commenced.

Mr. Hugh Stannus, in proposing a vote of thanks to the lecturer, said he was very much interested when he heard that Mr. Fletcher was to read a paper on "Palladio," for he (the speaker) had often been asked to do so himself but the subject being so large "he had feared to tread." To deal with the work of a man like Palladio, one would like to divide it into three great divisions. First of all, to seek to identify, to isolate, and formulate the principles on which Palladio worked; secondly, to endeavour to show where he found those principles—what had gone before him and how he codified and formulated our common art, which was what we were most indebted to him for; and, thirdly, what those principles led to, because every principle formulated in an art was something like a chemical solvent; it dissolved the existing or pre-existing art and led to re-combination of materials at hand or to the invention of new materials and new treatments; and to deal with these, to be of any use to students, would require more than the usual one-hour lecture. There was a great deal that was exceedingly interesting in Mr. Fletcher's paper, but there was one point to which he would take exception, *i.e.*, the charge of want of modesty on the part of Palladio, which, in Mr. Fletcher's mouth, was a very severe one to make. Knowing, as we do, that Palladio was famed amongst his contemporaries for his sweetness of disposition, one was rather sorry that such a charge should be made. In his fourth book, Palladio alludes to a number of contemporaries and spoke about them with the kindest appreciation; and in Chapter 20 of his third book, about the Basilica at Vicenza, he writes:—"I show a drawing of this because the porticoes which it has round it are of my invention,"—there was nothing against a man's modesty in that, because the porticoes were admirable; and he proceeds: "because I do not doubt that this fabric may be compared with the old buildings," *i.e.*, for certain qualities. These qualities are the size, the ornaments, and the materials, which are of the hardest stone, joined together with the greatest diligence." Palladio was comparing his work with the old work, not because of his design, not because of any art he put into it, but because it was made of strong stone, and that had particular meaning in the mouth of Palladio, as any one who goes to Vicenza would realise. He had been compelled to build his brick palaces so that they looked as though they were of stone, and the blame for this should be laid against the patrons who desired this effect of stone. When Palladio included this stone building with others merely because of the material, that did not afford sufficient ground for saying that he showed a want of modesty. He (the speaker) was jealous of the reputation of a man like Palladio, who had done so much for the art of architecture. Mr. Stannus asked permission to allude to another misstatement: Mr. Fletcher, in speaking of the arcade round the Basilica, said that it seemed to be copied from some of the colonnades from Diocletian's palace at Spalato. He (the speaker) had not been to Spalato, and he only knew the building from drawings in Adam's book and such photographs as he had come across from time to time, but from what he had seen he did not remember anything which

would suggest such treatment by Palladio. Certainly the entablature at Spalato ran all round until it came to the central pair of columns, and there the entablature was not broken round them, but it made a right-angled turn upwards, and was built as an arch. That was not new, not even at Spalato, for in the old buildings of the second century, at Baalbec or Palmyra, the treatment was to be seen. It was also adopted at a later date in the great archway at Damascus. As to where Palladio got his motif from—*i.e.*, the motif of having the four columns, a narrow space, a wide space, and another narrow space, putting beams over the narrow spaces, and an arch over the wide one—that was not Palladio's invention: it would be found in a book by Sebastian Serlio—an old copy of which is in the library of the Institute of Architects; and he would suggest that all students should look at that book to see the exact treatment that Palladio had adopted. That book was written in 1537, when Serlio was sixty-two years of age, and when Palladio was nineteen or twenty-nine, according as to how we accept the date of his birth. From that he thought it was clear that this motif had been used by Serlio before Palladio used it. He had two lantern-slides which showed still earlier treatments, and he would put them on the screen with the Chairman's permission. In conclusion, he expressed his regret that Mr. Fletcher had made his lantern-slides from the worn and not very good copper-plates in what he took to be Leoni's book. If Mr. Fletcher had taken the slides from the plates in Palladio's own book—and a man had a right to be judged by his own work, and not by some one else's work about him—the slides would have been much clearer and would have done greater justice to Palladio. If Palladio had done nothing else, he had taught us how to use the Orders. One could not do better than advise all young students who were beginning to study the Orders, to notice the way Palladio measured them and demonstrated the way to use them afterwards.

Mr. Stannus then showed and described several lantern slides made from photographs of Palladio's buildings taken by himself.

Mr. Louis Ambler seconded the vote of thanks. When he was in Italy he was led to study the *cinque cento* work, more than the later work which was illustrated by Palladio's buildings, and he had to admit that he did not admire Palladio's work so much then—some sixteen years ago—as he did now. One part of the paper had been especially interesting, and that was the account of the connexion between the work of Palladio and our own English Renaissance. That was a connexion which we ought to follow more closely, for it was of great interest.

The Chairman, in putting the vote of thanks to the meeting, said that if Mr. Fletcher's paper had the result of leading students to study more closely the work of Palladio and his contemporaries and followers, it would have achieved an excellent result. He was afraid that with a good many young architects there was a feeling that Classical architecture and the architecture of the Renaissance was to some extent dry and uninteresting, because it was governed so much by set rules and proportions. That was not the case, and the older they got the more they would feel the beauty and dignity of Classical architecture. Those who had had the advantage of seeing these works by Palladio where they stood would realise, more than they possibly could from views or photographs, what a very great deal there was in them. He had not been to Vicenza, but in Venice the churches of San Georgio and Redentore impressed him more than he had any idea they would. There was a simplicity and directness about them which appealed to one at once. There was no suggestion in any part of them of the slightest trickery; everything was most carefully thought out and all the effect was obtained in the most genuine and legitimate manner, and one could not help recognising that there were much greater possibilities in the application of the principles of Classic architecture than one could have possibly imagined. It was an unfortunate thing that Palladio had not been able to build more of his buildings in stone, instead of brick and stucco. It was no use, however, regretting that: Palladio was compelled, from considerations of economy, to use these meaner materials. In one or two cases, though, where the brickwork had not been covered by stucco—in San Giorgio, he thought—the effect was extremely good. With the vote of thanks he wished to include thanks to the Royal Institute of British Architects for the loan of drawings and books for the occasion.

The vote of thanks having been heartily agreed to, Mr. Fletcher, in reply, said that Mr. Stannus should have written on Palladio; it was generally the way that the best men did not write books. [Mr. Stannus: They fear to tread.] He knew that the Palladian *motif* was in Serlio's book, and he believed that Peruzzi used it in some of his buildings. He had been looking at the original book by Palladio, and he did not think the slides would have come out better had they been taken from the engravings there. It was difficult to reproduce from these old pictures, the slide-makers said. As to what he said about Palladio's want of modesty, in the translation he had read, Leoni's edition, things were put differently; he had not meant to make any point of the matter.

The Chairman announced that the next meeting will be held on May 1, when Mr. A. Needham Wilson will read a paper on "Architecture and the Public."

The meeting then terminated.

THE ARCHITECTURAL ASSOCIATION SPRING VISITS:

V.—BAPTIST CHURCH HOUSE.

THE numerous funds raised to commemorate the new century have produced among other things many new church buildings, and have stimulated the work of the various denominations.

The Twentieth Century Fund of the Baptist Union finds expression in the block of buildings shortly to be occupied in Southampton-row, which was the scene of the fifth spring visit of the Architectural Association on Saturday, April 4. Some eighty members took the opportunity of inspecting the premises under the guidance of the architect, Mr. Arthur Keen, who traced the evolution of the scheme and explained the details of the structure. A most interesting visit resulted.

Broadly speaking, the widening of Southampton-row by the London County Council accounts for the existence of the premises under consideration, to which the headquarters of the Baptist Union are presently to be transferred. A chapel formerly stood on the site, approached from a narrow thoroughfare—Kingsgate-street—running parallel with Southampton-row, and in the widening of the latter street, the site of the chapel was considerably reduced and only a narrow strip of land left for building purposes. The trustees of the chapel handed over their interests to the Union, who acquired the site, now built on, from the County Council. Its extent is about 140 ft. by 80 ft., and takes in what was formerly the Holborn end of Kingsgate-street; frontage is obtained in Southampton-row and Eagle-street, and direct light is only gained on these two sides. The main front and part of the side street are faced in brown Portland stone, and the remainder of the latter in red brick and stone. The elevations show an individual treatment of the later English Renaissance, and although the principal façade possesses a tower, it was felt that the opportunity had not been seized for emphasising the entrance doorway to the parent institution and contrasting with the shops placed on either side of it.

The buildings contain, in addition to the rooms and offices for the Council and Executive of the Baptist Union, a chapel and a Sunday-school placed in the back part of the site, and the remaining accommodation consists of shops and business offices; the architect has succeeded in giving to the fronts the effect of a modern public institution rather than that of business premises.

A corridor, 10 ft. wide and having a plaster barrel vault, leads from the entrance to the main hall and staircase, and to the right on entering is a large shop which will be tenanted by the Union for the sale of its own publications and other kindred literature. The chapel, placed on the ground-floor level, is entered from Eagle-street; here the favourite octagonal form has been resorted to, and ingeniously arranged in the matter of lighting; seating accommodation is provided for 400 people, 120 of whom will be located in the gallery; space is also allotted to a baptistry, pulpit, organ, vestries, and choir. The chapel is roofed with a steel dome, 44 ft. in diameter, surmounted by a lantern light, and the whole is skilfully worked in with the wall treatment of the octagon; the dome is finished inside with sixteen enriched plaster ribs, through which a pleasing scheme of horizontal plaster bands is introduced; the eight pendentives contain modelled plaster panels representing the trees named in the Bible, and are the work of Mr. Richard Garbe, who has also executed the stone figure on the principal front. The Sunday-school, octagonal in plan, is situated below the chapel, and has separate entrances and staircases for boys and girls; a classroom is also provided, and the remainder of the basement is occupied by lavatories, cellars, stores, and heating plant.

The first floor is the important part of the building; to the right of the staircase landing is the Council Chamber, a large room cross-lighted from areas, having a coved plaster ceiling and oak panelling; it is arranged to seat sixty persons disposed in three concentric rows; a large visitors' room is situated to the left looking into the main street and has cross ventilation; this is intended for the use of conferences and of members of congregations from distant places. The salient feature in each of these important chambers is the decorative ceiling modelled and executed by Mr. Laurence Turner; in the visitors' room the beams carrying the floor above are cased in plaster, and a satisfactory effect has been introduced in the heavy mouldings and intervening soffits which are modelled to produce uneven lines and surfaces, giving to the whole a feeling of sixteenth-century English plaster work, which, however, does not quite successfully take its place with the later character of the walls, doors, and other surroundings. Committee rooms, secretary's, clerks', and general offices of the Baptist Union complete this floor.

A good library, cross-lighted and ventilated, is placed on the second floor, and has a modelled ceiling, oak bookcases and panelling. It is intended to be used also as a luncheon room, for which purpose a kitchen is arranged close to it. A smoking room is also provided. Spacious housekeeper's rooms are planned in a portion of the fourth floor, whilst much of the remaining accommodation on the second, third, and fourth floors is devoted to business offices. These latter have good light, and are well-shaped rooms. The lighting of the rooms and passages is excellent throughout. A Waygood-Otis elevator delivers passengers to all the floors, and an external coal lift has also been put up.

The internal finishings show that much thought has been bestowed upon every detail. Prominent amongst these are the chimney-pieces in the principal apartments, in which much originality in form and material is displayed. These have been well carried out by Messrs. Walker, of Bunhill-row. The mantels in the offices are simple, but of a most serviceable type.

An interesting scheme of leaded stained glass, geometric in character, is introduced in the inner windows both of the chapel and offices, which has been executed by Messrs. Morris of Fulham. When finished and in working order the interior of this building will represent a good example of twentieth century design, and in addition to departing from tradition, the Baptist Union is to be congratulated upon its new quarters and the architect upon the result of his labours. The contractors, Messrs. Higgs & Hill, have also achieved a success in this work and in overcoming many structural difficulties.

COMPETITIONS.

BATHS, &C., LIVERPOOL.—At a recent meeting of the Liverpool City Council, Mr. Hampson, Chairman of the Estate Committee, said he would like to inform the Council of the result of the competition for the buildings proposed to be erected for baths, tramway offices, &c., at the George's Dock site. He had the report of the assessor, Sir William Emerson, which stated that in his opinion the design marked No. 11 merited the first place, No. 3 the second, and No. 5 the third. Seventeen designs were sent in, and the names of those competitors who have been placed in the order of merit are—First, Messrs. Stones & Stones, Blackburn, and Mr. W. E. Sproat, Glasgow (No. 11); second, Messrs. Briggs, Wolstenholme, & Thornely, Liverpool (No. 3); and third, Mr. H. A. Matear, Liverpool, and Messrs.

Simon & Crawford, Liverpool and Manchester (No. 5).

SCHOOL, WEST HARTLEPOOL.—The West Hartlepool School Board recently invited competitive designs from a limited number of architects for a school to accommodate 450 infants, 400 junior mixed, 300 senior boys, and 300 senior girls, together with cookery centre, manual instruction centre, and caretaker's house. Mr. John W. Simpson, F.R.I.B.A., of Gray's Inn, London, was appointed assessor. Eleven sets of designs were submitted, seven of which were from architects practising in West Hartlepool, the assessor's award being as follows :—First, Mr. Richard Holt, Liverpool ; second, Mr. James Carry, West Hartlepool ; third, Messrs. Bottomley, Son, & Wellburn, Middlesbrough ; fourth, Messrs. Jones & Sellers, Oldham. The author of the design placed first has been entrusted with the carrying out of the work, subject to the conditions of competition. A sum of ten guineas will be paid to each of the unsuccessful competitors, and the premium for the first design will merge in a commission of 5 per cent. upon the actual outlay. The author's estimate of the cost is 17,854*l*.

ENGINEERING SOCIETIES.

THE JUNIOR INSTITUTION OF ENGINEERS.—At the meeting of this Institution, held on April 3 at the Westminster Palace Hotel, the Chairman, Mr. Kenneth Gray, presiding, the first paper read was on the "Evaporative Trials of One of the Water-tube Boilers for the Chilian Battleship *Constitucion*," by Mr. H. E. Yarrow (member), of London. The paper described trials carried out to ascertain the comparative merits of a small grate and rapid combustion as against a larger grate and slower combustion. The second paper was on "Greasy Condensation Water as Boiler Feed," by Mr. Willam Paterson (member), of London and Glasgow. He pointed out that engineers generally did not fully appreciate the consequences which result from the use of greasy feed water. The slightest trace of grease in a boiler is always accompanied by a loss in steaming efficiency, but it is only when overheating takes place, causing leaking, blistering, and bulging of the tubes and flues, that this subject is given attention. How the presence of grease in a boiler may cause overheating is but vaguely understood. The usual explanation is that grease is a bad conductor of heat. The thermal conductivity of grease is low, but even a film of considerable thickness could not, simply by reason of its low thermal conductivity, offer such a resistance to the passage of heat as to cause overheating and collapse. In the author's opinion, it was not that grease was a bad conductor of heat, nor that it underwent any physical or chemical change in the boiler, but that it naturally prevented cohesion between the water and the plate, and so destroyed completely its emissive power. The boiler-plate, however, by virtue of its conductivity, acted as a temperature equaliser and distributer, allowing of the excess of heat vibrations from the part of the plate isolated by the grease from the water to flow to, and escape by emission through, those parts of the plate which had not been rendered non-emissive by the grease. Grease might be prevented from entering a boiler by separating it from the exhaust steam, or from the condensation water. No exhaust steam separator could discriminate between one vapour and another, and this was their limitation. Where high-pressure and temperature steam was used the oil was volatilised, and continued to exist as a vapour until it was condensed with the steam. It was impossible by any exhaust-steam separator to remove absolutely all oil from the steam. The services rendered by an efficient exhaust-steam grease separator, in keeping the condenser efficient as a heat abstractor, were most valuable, but their limitations should be clearly realised. In addition to other apparatus, the Paterson Purifier was described, in which the condensation water from the air-pump or hot well passed through an automatic measuring apparatus supplying the coagulant accurately at all variations of the load. The bulk of the grease, by reason of its lighter specific gravity, separated out in the form of thick sludge, and was not allowed to come into contact with the filtering medium. The Harris-Anderson Purifier was also described. The system of coagulation and filtration cost about 1d. per 5,000 gallons purified, and the removal of the grease, both in the mechanically suspended and emulsified forms, was found to be complete. Greasy condensation water from modern high-speed engines was of the nature of a filthy effluent, and should be handled as such, and not as a water containing only slight contamination.

Illustrations.

ILLUSTRATIONS OF PALLADIO'S WORK.

THESE collective illustrations of various works by Palladio are given in connexion with the paper on Palladio read by Mr. Banister Fletcher at the Architectural Association, and given in full in another part of this issue.

We have selected from a number of photographs lent to us by Mr. Fletcher, and which formed the originals of the lantern illustrations to his paper, some which, with the exception of the Villa Rotonda (or Capra) and Vicenza Theatre, are not the most familiar or the most often illustrated, omitting such well-known though important examples as the Palazzo della Ragione or the Redentore Church at Venice.

The illustrations are here given as examples of architectural style, and we need not now go into their history, which would be to some extent repeating Mr. Fletcher's paper.

THE ROBERT HALL MEMORIAL CHAPEL, LEICESTER.

THIS building stands at the junction of Narborough-road and Upperton-road, and was opened early last year. The elevations are composed of sand-faced bricks with Gunton ware dressings to the openings. The roof is of one span constructed of steel principals not visible on the inside, and bearers supporting a heptagonal barrel vaulted ceiling of Oregon pine divided by ribs into panels, the outside covering being tiles.

The windows and the upper panels of the doors are filled with stained glass.

A pitch-pine wood block floor was laid in the chapel, and Venetian marble mosaic in the corridors. The whole of the chapel and schools are heated by the hot-water low pressure system. WALTER BRAND.

ARCHITECTURAL TELE-PHOTOGRAPHY.

THE illustrations in this plate are given as examples of results obtained by the system of tele-photography, or photographing from a distance with special apparatus ; a system which enables large-scale photographs to be taken from points comparatively distant from the building, in cases where a closer position for the camera is impossible.

The system is described, and reference made to these illustrations, in the article on page 381 of the present issue.

ARCHITECTURAL SOCIETIES.

EDINBURGH ARCHITECTURAL ASSOCIATION.—At a meeting of this Association on the 1st inst.—Mr. Hunter Crawford, the President, in the chair—Mr. Frank Caws, F.R.I.B.A., Newcastle-on-Tyne, gave an address on "Fireproof Floors and Construction." He pointed out that since the great fire in London, which caused quite a revolution in the substitution of brick walls for those of timber, there had been but very slow progress in fire-proof construction. Latterly, however, the comparatively new material, Portland cement, had made fireproof floors a feature the mode of construction of which permitted of great variation, and the practice of architects and experts showed wide differences in matters of detail. Generally speaking, said the lecturer, the introduction of steel girders as supports for the concrete had been carried to a very unwise excess, inasmuch as the action of fire upon the steel, causing it to expand, made it most injurious to the concrete floors, and, instead of being a support, it proved in such cases the means of their destruction. Therefore, he advocated a method of constructing floors in large slabs of concrete, with a minimum amount of steel bearers, so disposed and protected from the fire as to give the necessary support without introducing an element of weakness. In closing, Mr. Caws described his own practical experience in buildings he had erected on the principle which he advocated. His remarks were illustrated by blackboard sketches, and at the close he was awarded a hearty vote of thanks.

ARCHITECTURAL ASSOCIATION OF IRELAND.—A meeting of the Architectural Association of Ireland was held on the 31st ult. in the Grosvenor Hotel. Mr. F. G. Hicks, President, occupied the chair. Mr. J. W. Boucher was elected a member, and Mr. W. Crawford Smith was nominated for membership. Mr. Guy Dawber then delivered a lecture on "The Stone Buildings of the Cotswolds." He said the Cotswold district comprised about 300 square miles of undulating country, and contained numbers of most interesting and characteristic examples of domestic architecture. They did not find much of this domestic architectural work earlier than the sixteenth century. During the reign of Queen Anne, when the commercial classes became a power in the country, many of the old Royalist families, who had suffered by the Civil War and afterwards by the reckless extravagance of the Restoration, were compelled to sell their estates, and migrate to the towns. The estates were bought by the wealthy merchants, and this might, to some extent, account for the want of variety in the style of the houses. The domestic buildings at the beginning of the seventeenth century varied but slightly. The lecturer then showed a series of photographic slides, the first of which represented Cotswold villages. These were followed by plans of houses in which the lecturer pointed out the simplicity of construction of the generality of these dwellings. The old Cotswold builders managed to get the most delightful effects out of very simple plans of buildings. He showed some peculiarities of arrangement of the stone slates with which the houses were roofed, and said that nothing was attempted in the way of workmanship that the local people could not do themselves. Several photographs were thrown on the screen to indicate the modifications and improvements of later times. Very little change was noticeable from the sixteenth to the eighteenth century, as the people showed a disposition to cling to old methods, and to think that what was good enough for their fathers was good enough for themselves. Notwithstanding this fact, however, there was a good deal of individual variety in buildings raised even on the most simple plans. The concluding slides contained views of very picturesque buildings to be seen in the Cotswold country. Mr. William Mitchell proposed a vote of thanks to the lecturer, which was seconded by Mr. C. H. Ashworth, supported by Mr. A. E. Murray, and carried unanimously.

LIVERPOOL ARCHITECTURAL SOCIETY.—On the 6th inst. the second annual general meeting of the Liverpool Architectural Society (Incorporated) took place at 13, Harrington-street, under the chairmanship of Mr. John Woolfall, the President for the ensuing year. Other officers elected were :—Messrs. T. E. Eccles and P. C. Thicknesse, vice-presidents ; Hastwell Grayson and Gilbert Fraser, hon. secretaries ; James Dod, hon. treasurer ; Alan G. James, hon. librarian ; H. P. Mortes and W. Glen Dobie, auditors. The following were elected Fellows of the Council :—Messrs. J. Dod, H. Hartley, E. P. Hinde, E. A. Ould, S. Pugin, W. E. Willink, and Professor F. M. Simpson. Associates elected for the Council were Messrs. Alan G. James and A. Thornley. The annual Report showed that the past session had been marked by steady progress. The total membership was now 154. The most important event of architectural interest during the year had been the preliminary Cathedral competition. The Report stated that the City Council had just held an important competition for workmen's dwellings, in the conditions of which it was carefully stated that they reserved the right of rejecting all the plans sent in and entrusting the work to the City Surveyor. The City Council had adopted this course. Their action, however, in putting architects all over the country to great trouble and expense and then rejecting the plans, although legal, was very regrettable, and would probably affect future competitions. At the close of the proceedings the President alluded to this matter, and remarked that if the Corporation asked architects to send in plans, any plans submitted by their own officials should be put side

by side with others, and the whole should be judged on their merits.

NORTHERN ARCHITECTURAL ASSOCIATION.—The members of the Northern Architectural Association held the first of their outdoor meeting on Saturday last week. The School Board Offices and Pupil Teachers' Centre in Northumberland-road, Newcastle, were first visited. The architect is Mr. W. H. Knowles. The cost of the building has been about 12,000*l*. The party next inspected the Northern Counties' Training School of Cookery. The architect, Mr. Dyson, conducted the party. The cost of the building has been about 8,000*l*. During the afternoon the following gentlemen were nominated members: — Messrs. H. Barnes, West Hartlepool; W. H. Bourne, Darlington; P. L. Browne, Newcastle; F. E. Coates, Sunderland; J. G. Crone, Newcastle; F. E. Dotchin, Newcastle; C. Errington, Newcastle; W. E. Fenwicke, Newcastle; J. Hall, Sunderland; and W. Tweedy, Newcastle. Associates: Messrs. K. B. Spurgin, Newcastle; C. J. Stephenson, Newcastle; and T. K. White, Newcastle. Students: Messrs. D. Ditchburn, Newcastle; W. G. Gradon, Durham; and W. Lawson, Gateshead.

DEVON AND EXETER ARCHITECTURAL SOCIETY.—The annual meeting of this Society took place at Devonport on Saturday, the 4th inst. Shortly after 11 a.m. the party visited the Keyham Extension Works, permission having been obtained for them from the Admiralty by Mr. Whately Eliot, the superintending civil engineer. Leaving Keyham the architects made for Thomas's Hotel, Devonport, for luncheon, the President, Mr. Pinn, in the chair. After the loyal toasts, the health of the Society, coupled with the name of the President, was proposed by Mr. Bazeley, and Mr. Pinn, replying, said it was now some time since the Society was first started, and they were glad that it had assumed such importance, and that the Plymouth brethren had taken it up so warmly. He ventured to hope, however, one thing—that in the future they would always consider themselves not as a part but as a whole society. Mr. Parker, Chairman of the Three Towns Branch, proposed "Success to Devonport," associating with the toast the name of Mr. E. M. Leest, the Deputy-Mayor. Unfortunately, the Mayor of Devonport could not be with them, but they had an able substitute in his predecessor in the civic chair (Mr. Leest). As a Three Towns branch they knew no boundaries, just as in matters of art there were no boundaries. The works they had been privileged to witness that morning left them but little to imagine as to the success and the progress that must eventually attend Devonport. It was largely through Mr. Leest that that branch of the Society was formed, and he had done great good in drawing them together. Mr. Leest, replying, extended to his brother architects a very hearty welcome to Devonport. It was very kind of his Plymouth brethren to have selected Devonport for the visit, and he was sorry that they could not show them better examples of domestic architecture. They had, however, made a start, and he hoped in a few years they would be able to show the architects of Devon and Cornwall something better. He might prophesy one thing, which would cause a little flutter amongst architects. He was hoping that before many years were over they would be having a competition for a new Guildhall and Municipal Offices—(a voice: "Confine it to Devon and Cornwall.") That was for the Borough Council to settle, but he would confine the competition to the two counties if he could, but it might not be possible. Although they could not show them domestic and ancient architecture, he thought they had been able to show them some great engineering works, and had convinced them that after all Devonport was a place of growing importance. The annual meeting was subsequently held, Mr. Pinn again presiding. A resolution standing in the name of Mr. Jerman, F.R.I.B.A., that the office of President be tenable for three years, fell through, as that gentleman was not present to support it.

COURT OF COMMON COUNCIL.—At the Court of Common Council on Thursday last week, in answer to a question by Mr. John Lobb, Mr. Alderman Alliston said that no action had yet been taken to arrange for a conference between the Corporation and the London County Council on the subject of the Building Act Amendment Bill.

INCORPORATED INSTITUTE OF BRITISH DECORATORS.

THE fifth annual general meeting of this Institute was held on Monday afternoon at Painters' Hall, Little Trinity-lane, E.C. Mr. J. D. Crace, London, was again elected President and the following Vice-Presidents were elected: Messrs. Mawer Cowtan Cowtan, London; J. C. M. Vaughan, Hereford; R. J. Bennett, Glasgow; Thomas Preston, Burnley; John Sibthorpe, Dublin; John Riley, Nottingham; Jno. Graham Cole, Newcastle-on-Tyne. The following General Council was also elected, *i.e.*, Messrs. Charles Carlton, Glasgow; Wm. George Sutherland, Manchester; William Fraser Dobie, Edinburgh; Thomas William Heath, London; Alderman Samuel Kendall, Huddersfield; Jno. Graham Cole, Newcastle-on-Tyne; James Puttrell, Sheffield; and John Henry Turner, Wakefield. Mr. G. A. Petter was elected auditor, Mr. W. H. Pitman, Treasurer, and Mr. Fredk. Wm. Englefield, Secretary.

It was suggested that the new Council should consider a proposal that in future the annual meetings of the Institute should be extended to two or more days, and that arrangements be made for the members of the Institute to visit places of decorative interest in London at the time of such annual meetings, and that at the same time arrangements be made for the giving of lectures and the reading of papers.

This proposal met with considerable support amongst the members, and will at an early date be brought up for consideration by the Council.

The annual dinner was held in the evening at the Trocadero, Shaftesbury-avenue, Mr. J. D. Crace presiding. Amongst those present were Mr. Mawer Cowtan Cowtan, Past Master of the Painter Stainers' Co.; Mr. J. Riley, President of the National Association of Master Painters of England and Wales; Col. Bennett, of the Association of Master Painters in Scotland; Alderman John Smith, and Messrs. J. C. M. Vaughan, T. Preston, and F. W. Englefield, Secretary.

The loyal and patriotic toasts having been honoured,

Mr. W. G. Sutherland proposed the toast of the evening, "The Incorporated Institute of British Decorators." He said that the Institute was the apex of the movement which began some ten years ago and which developed, thanks to the Painter Stainers' Co., in a manner which was not contemplated. The inception of the movement came from the late Mr. Thomas Bonner, but though the suggestion came from Scotland, the scheme was taken up very heartily by Englishmen and Irishmen, and those engaged in it represented the best thought, the ablest men, and the largest experience in the painting-decorating trades. Much of this was due to the fact that the Institute had for its home the rooms of the Painters Stainers Co., and to the fact that they had as their President, Mr. Crace, whose name and the name of his house was known so well. He hoped that Mr. Crace would continue to be their President for many years to come. The membership of the Institute was about 400, and considering the short time they had been established, that was very satisfactory. With the toast he coupled the name of Mr. J. D. Crace.

The Chairman, in response, said he believed the Institute had an important future before it, and that it would do a great deal to raise the general position and improve the relationship of decorators to each other. The National Association of Master Painters, which preceded the Institute, had a definite series of objects which were correlative and yet not identical with the objects of the Institute. The Association appealed more immediately to the material advantages of the decorator, and the Institute was formed to assist in establishing what he might call the higher moral relations of the decorator to his calling. The Instititute made rather a larger demand on the individual members, and he would be glad to see a greater readiness on the part of the members to meet and discuss the subjects which were of interest to the members as a whole. The Institute had organised a certain number of lectures, which had no doubt been of interest to the members, but in order to achieve a more natural growth he thought it was essential that the members should originate subjects, and read papers and discuss them, and he appealed to them to do so. He thought they might congratulate themselves on the work of the past year. Certain forms and documents had been drawn up which he thought would prove of great value to members of the Institute and to those engaged in the art of decoration. It was of the greatest importance to all decorators that their business should be interfered with as little as possible by doubtful disputes. In matters of taste there were always considerable differences of opinion and a readiness to dispute, and it was always well to have something to fall back upon which would afford means of settling disputes between decorators and clients, or between decorators themselves; in the past year a good deal had been accomplished in that direction. He appealed to those present to encourage their friends in London to join the Institute in greater numbers; more support was needed in the Metropolis. It was difficult to get in touch with men in London, and people seemed to be suspicious of every movement at its commencement, but that could be overcome by the efforts of members themselves. It would readily be seen how great a good could be accomplished by the Institute for decorators if it grew as other bodies had grown. The membership they had after an existence of about four years was good, and there were many other flourishing societies which had nothing like that membership after four or five years' work; but they must not sit still. The advantages of belonging to the Institute were not so apparent as those to be derived by membership of the National Association, for the Association dealt with such personal interests as the relationship of employer and employed, apprenticeship, &c., but in the long run the Institute would present advantages as great or greater if it were carried out on the lines he hoped to see it grow. There were many excellent forms of manufactured material made to assist the decorator, which did not constitute decoration. The art of decoration necessitated continuous study, a constant endeavour to acquire knowledge, and an intimate acquaintance with what had been done and with what could be done. From the age of 16, when he first took up the work of decoration, to the present day, his study and enthusiasm had not diminished. The art of the decorator was of unfailing interest, but it necessitated keeping the eyes and the mind open. Many advances had had been made, and in that respect the National Association had also done good, *i.e.*, by starting travelling studentships, so that students might go abroad and see what the old decorators and artists had done—not to copy, but to see what the possibilities of the art were. As an illustration of the advantage of study, he might mention the fact that his father, although he had a large family to bring up, spent quite a large part of his income on books, and he formed one of the finest private libraries of art books. His father also found time to visit Italy, Germany, and France to see what had been and what was being done by decorative artists. He earnestly appealed to members of that Institute not to be satisfied with the use of manufactured decorations, but to study the art of colour and decoration and produce their own work. It was a most entrancing study, and one might grow old in such work and never grow tired of it.

Mr. Cowtan Cowtan then proposed "The National Association of Master Painters of England, Scotland, and Ireland," coupled with the name of Mr. J. Riley, President of the National Association of England, and Colonel Bennett. He alluded to the help of the master painters in founding the Institute, and to the good work of the Presidents of the three associations, *i.e.*, Mr. Riley, Colonel Bennett (Scotland), and Mr. Thompson (Ireland).

Mr. Riley and Colonel Bennett having suitably responded, the remaining toasts were given: "The Visitors," proposed by Mr. Thomas Preston, past President of the National Association of Master Painters of England and Wales, and responded to by Mr. George Clulow; "The President," proposed by Mr. Charles Carlton, of Glasgow; and "The Secretary," proposed by Mr. W. H. Pitman, the Treasurer of the Institute. The President and Mr. Englefield having replied, the proceedings came to a close.

CONGREGATIONAL CHURCH, HERNE HILL.—A new Congregational church is to be erected on a site at Red Post Hill. The church, designed by Mr. Alfred Conder, will cost upwards of 8,000*l*. to erect.

PLUNGER PUMPS.

ALTHOUGH the theory underlying pump design is beautifully simple, it is by no means complete, and in actual practice pumps do not behave in the manner expected. Those who have had occasion to make experiments on hydraulic pumps and motors are aware that various curious phenomena exist, which are of theoretical and practical importance. Some curious actions observed, and others heard of from different sources, induced Professor John Goodman to carry out a series of experiments on a small plunger pump, with the object of solving some of the mysteries. These investigations are fully described in a paper read last month before the Institution of Mechanical Engineers. Some hitherto mysterious actions are therein satisfactorily explained, but many others still remain obscure. The trials were made with an ordinary plunger donkey pump and auxiliary apparatus fitted for the purpose at the Engineering Department of the Yorkshire College, Leeds. Among other objects, the experiments were intended to furnish information as to the discharge coefficient of a pump and the "water run" pressure in the suction pipe; to determine the exact behaviour as regards the opening and closing of the suction and delivery valves under varied conditions of running; to ascertain the loss of pressure due to friction of the water passing through the valves and passages of the pump, and to observe the effect of a vacuum or air vessel on the suction pipe. The general conclusions to be drawn from the investigation are (1) that in a pump of the type mentioned the quantity of water delivered depends on the speed of the pump and on the "co-efficient of discharge, which depends upon the action of the valves. The quantity pumped may be anything between 94 and 150 per cent. of the plunger displacement. 2. That water-ram pressures in the suction-pipes of pumps without air vessels may be very serious indeed, are very much greater than is suggested by the usual theory. 3. That the knocking often heard in the suction pipes of pumps is due to the separation and subsequent impact of the plunger and the water. 4. That uncontrolled valves in pumps of this type do not act as they are supposed to do, except when the pump is running at low speed and delivering against a moderate head. Most people believe that the volume of water delivered by a pump is to be gauged by the displacement of the plunger. The delivery of 50 per cent. more water than that so displaced is certainly an astonishing result, but the most remarkable of all the results obtained by Professor Goodman were "slip" measurements taken when the pump was working without a suction-valve. Water was then delivered during the suction-stroke simply by the inertia pressure in the suction-pipe forcing open the delivery-valve before the completion of the suction-stroke. Although these experiments were limited to one small form of pump the information obtained is particularly interesting and suggestive.

THE LONDON COUNTY COUNCIL.

THE usual weekly meeting of the London County Council was held on Tuesday in the County Hall, Spring-gardens, Lord Monkswell, Chairman, presiding.

Loans.—On the recommendation of the Finance Committee, it was agreed to lend Stepney Borough Council 2,100*l.* and 9,353*l* for street improvements; Battersea Borough Council, 5,039*l.* for paving works; Lambeth Borough Council, 3,600*l.* for a similar purpose; Shoreditch Guardians, 2,686*l.* for alterations to the kitchen at the parish infirmary; and Lambeth Borough Council, sanction to loan of 16,245*l.* for paving work.

Theatres, &c.—The following applications were agreed to:—

Additional box office, Chelsea Palace of Varieties (Messrs. Wylson & Long).

Alterations to back wing of Covent Garden Theatre (Mr. E. O. Sachs).

Taxation of Land Values.—The debate on the Report of the Parliamentary Committee on the Land Values Assessment and Rating Bill was resumed. Mr. Benn moved the following amendment, which was accepted by the Parliamentary Committee, and carried, on a division by seventy-six votes to twenty:—"That the principle of the rating of land values, by the separate assessment of land and buildings, be approved."

Annual Map of London.—The Corporate Property Committee reported that the annual map of London is now ready for the printer. It will show the progress of building operations in London since the last revised issue of the Ordnance Survey. New buildings erected, and any work or alterations which have been effected by the Council will be indicated, and the several concessions obtained under the Building Act denoted, detailed information respecting which can be obtained from the detail section of the ground plan.

Wimbledon-road.—The Improvements Committee were authorised to incur expenditure on capital account up to 5,300*l.* to secure the widening of Wimbledon-road to 54 ft. between Garratt-road and the county boundary.

Colney Hatch Asylum and the Fire-Alarm System.—The Asylums Committee reported as follows, the recommendations being agreed to:—

"We have had under consideration the question of extending the existing fire-alarm system at this asylum. At present there are nineteen points from which alarms can be given, and in the majority of cases the boxes at these points are on the staircases outside the wards, necessitating the attendants who require to use them leaving the patients, which is not advisable. We propose fixing an alarm bell in every male ward, in the mess-room, and in the visiting-room on the male side of the asylum, also in all the staff quarters, mess-rooms, and the visiting-rooms on the female side. We also propose to provide a fire-alarm box in a convenient position in each ward, in every independent dormitory and in all the administrative buildings. The present indicator will require to be enlarged and an indicator will be provided in the female visiting-room. The estimated cost of these works is 325*l.* Provision to the extent of 10,000*l.* has been made in the annual rate estimate for the year commencing April 1 next, for alterations to existing buildings and for appliances for further protection against fire, to which sum this amount should be charged. In view of the desirability of the work being carried out as speedily as possible, we recommend—That, subject to the passing of the annual maintenance votes, the Council do sanction an expenditure of 325*l.* for the extension of the fire-alarm system at Colney Hatch Asylum."

Manor Asylum: New Block.—The same Committee reported as follows:—

"On July 29 last the Council voted the sum of 9,300*l.* for the erection of an additional block at the Manor Asylum for the accommodation of sixty male patients, the amount voted being charged to capital account, and the term of repayment being fifteen years. It was then proposed that this building should be constructed of similar materials to the existing buildings there, *i.e*, wood framing with plaster lining and corrugated sheeting outside, but in view of the recent experience we have had in regard to temporary buildings, we have thought it desirable to make this a permanent brick structure. The works necessary in consequence of the alteration of the original specification will, we are informed, necessitate an additional expenditure of 1,200*l.* In the circumstances we think that the Council's vote of July 29 last should be cancelled, and the total amount required charged to capital (original outlay) full term account.

The Commissioners in Lunacy have informed us that they are prepared to recommend the Home Secretary to approve the alterations, and amended plans have been forwarded to them for this purpose. We recommend—(*a*) That the resolution of July 29, 1902, approving of the estimate and authorising an expenditure of 9,300*l.* for the erection of a block of buildings at the Manor Asylum for the accommodation of sixty male patients, be rescinded. (*b*) That, subject to the approval of the necessary plans by the Secretary of State, the estimate of 10,500*l.* submitted by the Finance Committee for the erection of a permanent block at the Manor Asylum to accommodate sixty male patients, be approved; and that the Asylums Committee be authorised to incur expenditure on capital account up to 10,500*l.* for that purpose."

Mr. Beachcroft moved and Mr. H. P. Harris seconded that the Committee be instructed to advertise for tenders.

The amendment was, however, rejected, and the recommendation was carried.

Boilers, Hanwell Asylum.—The same Committee recommended and it was agreed that the estimate of 6,650*l.* submitted by the Finance Committee for the works connected with the centralisation of the boiler plant at the Hanwell Asylum, and causing increased value of the buildings and machinery beyond their original cost, be approved; and that the Asylums Committee be authorised to incur expenditure on capital account up to 6,650*l.* for that purpose.

Fire Station, Deptford.—The Fire Brigade Committee reported as follows:—

"On July 29, 1902, the Council authorised us to make the necessary preliminary arrangements for the erection of a new station on the site of the existing Deptford station and of the premises Nos. 188 and 190 (formerly Nos. 114 and 115), Evelyn-street. The quantities of the work to be done in connexion with the erection of the new station having been taken out, the Architect reported that his revised estimate of the cost of building amounted to 10,350*l.* As we are of opinion that the work should be carried out without the intervention of a contractor, we referred the drawings, specifications, quantities, and estimate to the Works Committee, who have now intimated that they are satisfied of the sufficiency of the Architect's estimate. We have forwarded to the Finance Committee an estimate of 11,510*l.*, which, in addition to the cost of building, provides for lighting the station by electricity and for an electric bell installation, and covers the cost of lithography, preparation of quantities, quantity surveyor's fees, architect's expenses, clerks of works' wages, and incidentals. . . . . We recommend that the estimate of 11,510*l.* submitted by the Finance Committee in respect of the new Deptford fire-station be approved, and that an expenditure of that amount be authorised; that of this amount the sum of 10,350*l.* be authorised for the work of erecting the station; that such work be executed by the Council without the intervention of a contractor; and that the drawings, quantities, specification, and estimate be referred to the Works Committee for that purpose."

Mr. Goodrich moved an amendment to the effect that advertisements be issued for tenders for the erection of the building. He pointed to the Horton Manor Asylum as an example of the work of the Works Department, and contended that the contractor would carry out the building in less time and for less money than the Department.

Mr. Antrobus seconded the amendment.

Mr. Cousins pointed out that in four years seventeen fire stations had been erected by the Works Department and only five by contractors. He thought this station should be put out, as a check to the Department.

Mr. Howell J. Williams said the Architect's estimate had been disclosed, and it would be unfair to the Works Department to put the work out to tender in those circumstances. The Department ought to be kept going, seeing what an enormous amount of capital was involved in it.

Mr. Smith, Chairman of the Committee, said the record of the Works Committee in regard to the erection of fire-brigade stations was entirely satisfactory.

The amendment was lost, and the recommendation of the Committee was then agreed to.

Tramway Matters.—It was agreed, on the recommendation of the Highways Committee, to accept the tenders of the British Westinghouse Electric and Manufacturing Co., amounting to 65,968*l.* and 53,012*l.*, for bogie-truck cars and single-truck cars respectively.

Answering Mr. Steadman, Mr. Benn said that out of the 111,000*l.* only 5,000*l.* of work went abroad.

Replying to Mr. Gilbert, the Chairman of the Committee promised to consider the matter of running cars morning and evening for women only.

Housing.—The Report of the Housing of the Working Classes Committee contained the following paragraphs:—

"We have to report that Rye-buildings, Swanlane estate, Rotherhithe, are now ready for occupation. The buildings have been erected to provide rehousing accommodation for persons to be displaced by the construction of the Rotherhithe tunnel. They contain twenty tenements of two rooms and twenty tenements of three rooms, affording accommodation for 200 persons.

On March 31, 1903, authority was given for the seal of the Council to be affixed to a scheme for the provision of rehousing accommodation in connexion with the Mare-street improvement, Hackney. The scheme provides that dwellings shall be erected on sites at London-fields and Jerusalem-square for the accommodation of not less than 526 persons. The Council has already entrusted to Messrs. Stimpson & Co. the work of building dwellings to accommodate 190 persons on the London-fields site, and we have now to report that the Secretary of State has approved the plans of the dwellings to be erected on the Jerusalem-square site. We are therefore in a position to proceed with the preparation of working drawings and bills of quantities in respect of the dwellings, and in order that the expenditure involved may be covered it is necessary that the Council should vote a sum of 500*l.*"

Mill-lane Lodging-house, Deptford.—The same Committee recommended and it was agreed:—

That the Chairman of the Housing of the Working Classes Committee be authorised to accept the lowest satisfactory tender for the

construction of wooden partitions on the 2nd, 3rd, 4th and 5th floors at the Mill-lane lodging-house, Deptford.

School Board Rehousing, Norfolk-street Site, Poplar.—They also recommended that the offer of Messrs. F. & T. Thorne to build the fourteen cottages to be erected on the Norfolk-street site, Poplar, at a reduction of 3½ per cent. on the prices contained in their contract for the erection of the first two blocks of dwellings on the Preston's-road site, with a further reduction of 1*l.* per rod on the price of brickwork be accepted.

This was agreed to.

A Brickmaking Experiment.—Lord Carrington reported that the result of the brickmaking experiment on the Norbury estate, Croydon, had been a success.

Mr. Beachroft said that a great number of the bricks made were grizzles, and they were useless for the purpose required.

Mr. Cohen asked whether the bricks would be laid at the rate of 200 or 2,000 per day.

A long report on the subject of the Norbury experiment was held over.

Works Department.—A long report on the result of the erection of the superstructure of Horton Asylum by the Works Department was submitted and adjourned. The balance of cost above final estimate was reported to be approximately 39,500*l.*

Clifford's Inn.—In answer to Mr. Sankey, Mr. Cleland promised to bring the question before the Parks Committee of preserving the garden in Clifford's Inn as an open space.

The Council adjourned at eight o'clock till May 5.

APPLICATIONS UNDER THE LONDON BUILDING ACT, 1894.

THE London County Council at their meeting on Tuesday dealt with the following applications under the London Building Act, 1894. The names of applicants are given between parentheses :—

Lines of Frontage and Projections.

Lewisham.—A dwelling-house on the north side of Perry-vale, Forest Hill, westward of Normanton House (Mr. D. G. Horlock).—Consent.

Marylebone, West.—An iron and glass covered way in front of No. 44, Hamilton-terrace, St. John's Wood, St. Marylebone (Mr. A. Snook for Count Hollender).—Consent.

St. George, Hanover-square.—Enclosures to the existing portico at the entrance to No. 42, Upper Grosvenor-street, St. George, Hanover-square (Mr. R. G. Hammond for Mr. G. A. Prentice).—Consent.

Marylebone, East.—Two houses, with bay windows and one-story shops in front, on the site of Nos. 230 and 232, Great Portland-street, St. Marylebone (Mr. A. Baker).—Consent.

Hackney, South.—That the application of Mr. R. Robertson for an extension of the periods within which the erection of a block of buildings to be inhabited by persons of the working classes on the east side of London Fields, Hackney, was required to be commenced and completed be granted.—Agreed.

Marylebone, East.—A modification of the scheme consented to for the erection of projections to a block of buildings on the site of Nos. 164 to 182, Oxford-street, St. Marylebone (Mr. R. F. Atkinson for Mr. S. J. Waring, jun.).—Consent.

Marylebone, West.—A vestibule within the portico at No. 1, Portman-square, St. Marylebone, to abut upon Lower Seymour-street (Messrs. Wright & Adams for Captain J. C. D. Parker).—Consent.

Hammersmith.—The retention of blocks Nos. 1 and 2 and the erection of blocks 3 and 4 of residential flats on the north-east side of Paddenswick-road, Hammersmith, northward of "The Old Thatched House" public-house (Mr. C. H. Isaacs for Messrs. Flew & Co.).—Consent.

Lewisham.—Four dwelling-houses on the north side of Ravensbourne-road, Catford (Mr. J. W. Webb).—No order.

Lewisham.†—Conversion into a shop of a bay-window at No. 72, Brownhill-road, Catford (Mr. J. Lawrence for Mr. F. Bedford).—Refused.

Dulwich.—An addition to Christchurch (Presbyterian) Church, East Dulwich-grove, Dulwich, to abut upon Townley-road and Calton-road (Mr. C. E. Barry for the Rev. J. R. Patterson).—Refused.

Hackney, North.—Buildings on a site on the north side of Manor-road, Stoke Newington, eastward of No. 42 (Mr. F. J. Matthews).—Refused.

Hammersmith.—Buildings at the rear of Nos. 176, 178, 180, and 182, Goldhawk-road, Hammersmith, to abut upon Cathnor-road and Conningham-road (Col. E. Clark).—Refused.

Width of Way.

Whitechapel.—A urinal at the rear of the Red Lion public-house, Black Lion-yard, Whitechapel-road, Whitechapel (Messrs. Deakin and Cameron for Mr. B. Sheinman).—Consent.

Woolwich.—A two-story addition at the rear of Nos. 87 and 88, Beresford-street, Woolwich, with the external walls at less than the prescribed distance from the centre of the roadway of Rope-yard-rails (Mr. F. Mitchell for the Labour Club and Institute).—Consent.

Width of Way and Lines of Frontage.

Hammersmith.—A nurses' home at the West London Hospital, Hammersmith-road, Hammersmith, with the external walls at less than the prescribed distance from the centre of the roadway of Elm-grove (Messrs. W. Harvey and G. H. Hunt for the Committee of the Hospital).—Refused.

St. Pancras, East.—A greenhouse on a site on the east side of Camden-road, St. Pancras, at the corner of King's-road (Messrs. W. F. Meakin & Son for Messrs Bourne & Underwood).—Refused.

Hackney, North.—Five houses with bay windows on the northern side of Harrington-Hill, Hackney, to abut upon Ivy-terrace (Mr. W. Stone for Mr. J. L. Siggins).—Refused.

Hampstead.—Buildings on the east side of Fortune Green-road, Hampstead, to abut also upon Weech-road (Mr. C. H. B. Quennell for Mr. C. Pain).—Refused.

St. George, Hanover-square.—A projecting doorway in front of the coachhouse of No. 31, North Bruton-mews, Bruton-street, St. George, Hanover-square (Messrs. Campbell, Smith & Co., Ltd., for Mr. C. W. Trotter).—Refused.

Line of Frontage and Height of Buildings.

Strand.—An addition to the Savoy Hotel on the west side of Savoy-buildings, north side of Somerset-street, and east side of Beaufort-buildings (Mr. T. E. Collcutt for the Savoy Hotel Co., Ltd.).—Consent.

Space at Rear.

Lewisham.—A modification of the provisions of Section 41 with regard to open spaces about buildings, so far as relates to the proposed erection of a house on the north side of Perry-vale, Forest Hill, westward of Normanton House, with an irregular open space at the rear (Mr. D. G. Horlock).—Consent.

Kensington, South.—A modification of the provisions of Section 41 with regard to open spaces about buildings, so far as relates to the proposed erection of a building on a site on the north side of Oakwood-court, and east side of Addison-road, Kensington (Messrs. Rolfe & Matthews for Messrs. Jones Bros.).—Consent.

Deviation from Certified Plans.

Deptford.—Deviation from the plans certified by the District Surveyor under Section 43 of the Act, so far as relates to the proposed erection of an addition at the rear of the Royal Standard public-house, Tanner's-hill, Deptford, to abut upon Heald-street (Mr. H. Roberts for Mr. W. H. W. Cooper).—Consent.

Formation of Streets.

Lewisham.†—That an order be issued to Mr. H. Porter, refusing to sanction the formation or laying-out for carriage traffic of a new street out of the northern side of Woolstone-road, Lewisham (for the Leathersellers' Company).—Refused.

Means of Escape at the Top of High Buildings.

Southwark, West.—Means of escape in case of fire, proposed to be provided in pursuance of Section 63 of the Act, on the fifth story of the west tower of the Henriette Raphael Nurses' Home, Guy's Hospital, Great Maze-pond, Southwark (Mr. E. C. Perry for the President, Treasurer, and Governors of Guy's Hospital).—Consent.

Dwelling-houses on Low-lying Land.

Rotherhithe. — A building on low-lying land situated at Manor-lane, Rotherhithe (Mr. E. Crosse for Messrs. A. White & Co.)—Consent.

Southwark, West.—Nine buildings on low-lying land situated at New-cut, Lambeth (Mr. W. R. Milton for Mr. T. L. Green).—Consent.

Lambeth, North.—Three buildings on low-lying land situated at Nos. 20, 21, and 22, New-cut, Lambeth (Messrs. Flood & King for Messrs. E. H. & H. C. Ruscoe).—Consent.

Deptford.—A block of buildings on low-lying land situated at Rollin-street, Peckham (Mr. T. D. Falconer).—Consent.

*** *The recommendation marked † is contrary to the views of the Local Authority.*

WAR MEMORIAL, NOTTINGHAM.—The memorial which has been erected in Nottingham to the officers and men of local regiments who fell during the South African campaign, was unveiled on the 26th ult. by Lord Methuen. The obelisk has been erected by Messrs. McDonald & Co., of Aberdeen. Of classic form, it is hewn out of Aberdeen granite. The total height of the monument is 25 ft., the obelisk itself being 14 ft. high, standing on a panelled pedestal of 8 ft., the base, which is protected at each corner by miniature guard posts, being formed by two steps. The pedestal averages 3 ft. square, and the obelisk tapers from 25 in. to 15 in. The foundations for the memorial were prepared under the direction of Mr. R. Evans, architect.

TRADE CATALOGUES.

MESSRS. WALLACH BROS. send us a sheet describing and illustrating their most recent machines for paint spraying. These include the "portable pneumatic oil and lead paint spraying machine," which is complete in itself, and requires no other power but that furnished by its own pump; the "oil paint sprayer" specially adapted for use with existing compressed air installations; and the "single-nozzle double-nose oil paint sprayer." This latter can be attached to an existing compressed air supply, but for light work, which is not continuous, a pump can be introduced into the tank, and the machine used independent of any outside power.

Messrs. Andrew Handyside & Co., Ltd., Britannia Ironworks, Derby, send us their catalogue of smiths' hearths and general smithy fittings. It is small, well printed, and fully illustrated. Many different kinds of hearth are shown—rectangular, annular, and circular — for heavy and light work. The accessories include anvils, tools, smoke-pipes, wall-cranes, slake-troughs, and other fittings. There is a complete price list at the end of the catalogue.

From the American Radiator Co., 89 and 90, Shoe-lane, E.C., we have received two catalogues. The smaller (62 pages) contains illustrations, descriptions, and prices of American radiators and "Ideal" boilers. The larger catalogue, which is entitled "The Ideal Fitter," includes all the matter contained in the smaller, together with forty additional pages devoted to "Heating Specialities" and "Hints to Fitters." The radiators are all of the well-known sectional type, and are adapted for water or steam. The "Astro Hospital Swinging Radiator" is hinged at one end to a plate bolted to the wall, and can be swung out like a gate; this is an ingenious contrivance, and if the joint is thoroughly watertight (as it is said to be) the radiator will be useful in houses as well as hospitals; the spaces between the vertical tubes or sections are 1¼ in. wide, so that they can be easily cleaned. The dining-room radiators, containing "ovens," are also worthy of mention. The boilers are of cast iron, and nearly all are of the sectional type. The heating specialities include valves of various kinds, tools, air-grates, &c. Architects as well as fitters will obtain some valuable hints on the design and fixing of heating apparatus from the concluding section of the catalogue entitled "Hints to Fitters." Every architect ought to possess a copy of this well-printed catalogue; it is certain to be of use to him.

The Phalanx Window Blind Co., of 50, Bishopsgate-street Without, E.C, have sent us their catalogue of "window-blinds" or "roller-shutters." These are revolving-shutters, the peculiar features of which are the sections of the laths and the method of fastening them together. Some of the laths are "perforated" (except where the connecting bands occur), forming a series of louvre boards, which exclude sunshine but allow the passage of light and air. In another type of blind the laths are connected by short steel strips, so arranged that the laths will fit closely against each other, thus excluding both light and air, or can be lifted to allow ¼-in. spaces between. All the different types can be supplied with awning-irons, so that the shutters can be pushed out to serve as sun-blinds.

From Messrs. Tudors, Mash, & Co., of 17, College Hill, E.C., we have received a catalogue of sanitary fittings, plumbers' and gas-fitters' brasswork, lead traps and bends, cast-iron soil-pipes and drain-pipes, rainwater goods, manhole covers, stoneware pipes, traps and channels, galvanised iron tanks and dust-bins, wrought-iron tubes, paint brushes, lead pipes, sheet lead and zinc, &c. The catalogue is of the usual trade type, usetul for reference, but does not, as far as we can see, contain any important novelty.

Messrs. Shanks & Co., Ltd., Tubal Works, Barrhead, have sent us their supplementary catalogue of sanitary fittings, dated 1902. Many of the fittings are admirably designed. The oval lavatory (No. 1,372) has a dished marble top, 33 in. by 24 in. by 2 in., standing clear of the wall and supported on nickel-plated brass legs and rails. Another lavatory, priced 50 gs., has a Mexican onyx top and frieze. Less expensive lavatories are also shown, together with baths, water-closets, sinks, &c., of various designs, materials, and prices. The illustrations include five views of bathrooms

fitted up by Messrs. Shanks & Co. The catalogue is beautifully printed, and is one which the architect will find both interesting and useful.

Messrs. Bell's Asbestos Co. send us a copy of a test certificate summarising the results of experiments to determine the relative condensation of steam in two pipes—3 in. diameter—one being covered with 2 in. of asbestos composition, and the other left bare. Under the conditions stated, the steam condensed per square foot per hour was: For bare pipes, 0·986 lb., and for covered pipe, 0·1697 lb. These figures show very conclusively the advantage to be derived from the protection of steam boilers and pipes.

Books.

The Rock Tombs of Deir el Gebrâwi. By N. DE G. DAVIES. Eleventh and Twelfth Memoirs of the Archæological Survey of Egypt. London: Kegan Paul & Co. 1902.

THE rock tombs illustrated in these two volumes of the archæological survey of Egypt obviously contain little or nothing of architectural interest. Mr. Davies observes that the exteriors of the tombs, "though still striving to imitate the façade of a brick-and-timber built house, are very simple, and often rough," and in this respect compare unfavourably with the contemporary tombs at Sheikh Saïd. In the illustrations one can rarely detect even the degree of approach to architectural detail indicated by the author. Their whole interest lies in the paintings and records inscribed on the walls, with which the illustrations are principally occupied.

One curious fact is mentioned; that some of the scenes in the tomb of Aba were copied in the days of Psammetichus I., in the seventh century B.C., a period about half way between the original date of the tombs (Sixth Dynasty) and our own. The copyist was a prince of Thebes, also named Aba, who appears to have been interested in the existence of an ancient painted tomb of a namesake, and adopted part of the decoration; such at least is Mr. Davies's explanation.

The Deir el Gebrâwi tombs were re-discovered in 1850 by Mr. Harris of Alexandria, and were visited by Sir Gardiner Wilkinson, and at a subsequent period by Professor Petrie and Mr. Griffith; and the expedition sent out in charge of Mr. Newberry, in 1892, spent some time there; but as nothing had been published it was proposed that this should be Mr. Davies's principal work for the winter of 1899, and we have the result in these two volumes.

The paintings, much defaced, represent many scenes in household and estate occupations, in most cases with the master shown as a figure of colossal size compared with the others; they do not differ materially in incident and character from many other sets of Egyptian tomb-paintings. A few enlarged coloured plates of some of the figures show that the style of drawing and execution was very crude.

Shakespeare's Church. By J. HARVEY BLOOM, M.A. London: T. Fisher Unwin. 1903.

THIS is a far better book than the title on the cover would lead the would-be purchaser to suppose. It is, in fact, as the secondary name on the title-page states, "An Architectural and Ecclesiastical History of the Collegiate Church of the Holy Trinity of Stratford-upon-Avon." Gossiping books of all shapes and sizes, and of every condition of merit and demerit, abound, which tell of the great dramatist, of the town of his birth, and of the place of his burial. The ordinary run of guide-books of the district seem to imagine that the fine church of Stratford-on-avon was a kind of appendage to William Shakespeare, or, at all events, of no interest whatever outside his connexion with it. Now, however, for the first time, we have a real and accurate history, written with much painstaking skill, of a remarkable parish church with a remarkable history. There was a Saxon monastic church in this place, on the banks of the Avon, for three or four centuries before the Conquest; but of that church and its Norman successor no traces now remain. The cruciform plan of the present church, with a lofty chancel of five bays and a nave of six, dates in its oldest parts from the first quarter of the thirteenth century, to which period the north and south transepts portion belongs, together with certain raised parts of the central tower. The north and south aisles of the nave, together with the arcades and the tower, were reconstructed in the reigns of the first two Edwards; whilst the chancel, clearstory, west window, and north porch are of the end of the fifteenth and beginning of the sixteenth centuries. The spire is a most exceptionally creditable piece of work for the date when it was accomplished, namely, 1765. Mr. Bloom also gives full particulars of the three periods of nineteenth-century "restorations" that this long-suffering church has undergone. He proves by his various remarks and explanations of the distinctive features of the fabric that he possesses exceptional powers of architectural discrimination, and in one point only of this part of his book does Mr. Bloom seem to need correction. In describing the lofty, well lighted chancel, *circa* 1500, he says:—"At this period the desire for a light church was so great that every other consideration was often sacrificed, and the whole wall space was often one large window and little else." But surely this state of things was not brought about by an overwhelming longing for light, but rather for space wherein to make display of the then fashionable craze for a great wealth of coloured glass. The photographic plates both of general and detailed views of the church are good and original; it is as interesting as it is exceptional to find one of the weather-mould of the thirteenth-century roof taken from the leads of the nave. The history of this church, and the change of its elaborate guilds into a regular college of priests is of exceptional interest and well told, but space cannot here be found for comments on this portion of a book which cannot fail to prove of value to the general ecclesiologist.

The Year's Art. Compiled by A. C. R CARTER. London: Hutchinson & Co. 1903.

THIS useful compilation contains, as usual, a record of the exhibitions of the year in London, with notes on the progress of art in various provincial and colonial quarters. and a large directory of artists and art workers. It includes also particulars of the various art galleries, museums, and schools of art in the United Kingdom. The editor writes a short general article on "The Past Year," in the course of which he specially draws attention to the appeal that has been made by Mr. Claude Phillips and Mr. MacColl to English lovers of art to form some body analogous to the French "Société des Amis du Louvre," to create a fund that might eke out a sparse Government grant to any of the national art institutions. This would certainly be a help, but what is really wanted is that the Government should be more liberal with grants for artistic purposes. As long, however, as the average Englishman, who is also the average elector, continues to regard art as a mere plaything, little is to be hoped for from Parliament. The volume includes also a short paper by Mr. H. H. Statham on "Architecture in 1902."

The Housing Handbook: a Practical Manual. By W. THOMPSON. London: Published by the National Housing Reform Council, 432, West Strand, and P. T. King, 2 and 4, Great Smith-street, Westminster. 1903.

THIS handbook should be in the possession of every one who has anything to do with local government or is interested in the housing question. It is full of practical points, and gives an immense amount of information on the subject of housing. It is illustrated with many suggestive views of old slums and new model buildings, with a large number of ground plans. To discuss it at length would be to enter, as we have more than once done, into the general question. It must suffice, then, to say it consists of 99 pages of well-printed material, with a good index, and to repeat the opinion that the book is at the present time of the utmost value.

Lockwood's Builder's, Architect's, Contractor's, and Engineer's Price-Book for 1903. Edited by FRANCIS T. W. MILLER, A.R.I.B.A. London: Crosby Lockwood & Son. 1903.

THE recognised position now worthily taken by this book, with its older contemporary "Laxton," among the list of annual works dealing with builders' prices is well kept in this the latest edition. In fact, it is now the question, when the time arrives for consulting a price book, for the alternative to be put—"Laxton or Lockwood?" a question which does credit to both works. As we are, however, dealing in this notice with the younger work of the two, it is sufficient to say that wherever a price book is required, with the limitations applicable to all works of this nature, this will be found a most useful work of reference for the purpose for which it is specially designed, as well as for the numerous items dealing with systems of measurement, Building and Public Health Acts, electric lighting, and the thousand and one things appertaining to the building trade generally. The pricing portion has been consistently and carefully dealt with in a practical way which does credit to the editor.

Correspondence.

LONDON DISTRICT SURVEYORS.

SIR,—Seeing the district of the late lamented Professor Roger Smith advertised, I cannot help thinking of the list of candidates in 1875 when he was elected—Messrs. F. Waller, R. Plumbe, G. Lansdowne, H. Jarvis, junr., A. H. Stenning, J. Clarkson, J. D. Mathews, A. Allon, Lacy W. Ridge, R. P. Nottey, J. S. Quilton, D. R. Dale, Banister Fletcher, Horace Gundey, Thos. Blashill, E. Carritt, J. H. Watson, A. Payne, H. H. Collins, F. R. Meeson, Robert Walker, and others—about thirty well-known men.

I now turn to the advertisement, and wonder what men will offer themselves for the vacant districts, none of which will exceed an average of 600*l.* per annum, and one is estimated at 500*l.* Now, if the latter amounts to this on an average, there must be deducted office rent, stationery, stamps, clerk, travelling and sundries, which cannot be much less than 150*l.* to 200*l.* per annum, and for this sum of 300*l.* net the Council expect to get an experienced man who has passed a stiff examination, although a tramway manager gets over three times as much clear of all expenses, and the Manager of the Works Department, a kind of superior builder's foreman, gets 1,500*l.* Either of these vacant districts, on the old conditions with private practice, would secure good men, but under the present conditions one or two experienced men may offer, but the general run of candidates will be district surveyors' clerks, and a rapid decline in the position of the surveyor must follow.

Is it too late for the Council to withdraw the advertisements, and see that no district is of the annual value of less than 1,000*l.* gross.

"BUILDING ACT."

WOODEN STRUCTURES.

SIR,—The select party of Borough Engineers who met at the Westminster Palace Hotel on March 27 to discuss the above subject do not appear to have invited any interested parties other than themselves to their deliberations. You will, therefore, perhaps, allow me, a mere District Surveyor, to make a few observations on the subject.

The opener of the discussion appears to have stated the case with reasonable fairness, but the proposer of the vote of thanks, after having done so, appears to have gone off on his own hobby, and the others to have followed in his wake.

One would have thought that the late Vestry Surveyors, being, under the London Government Act, raised to the dignity of full-blown Borough Engineers, would have been content with their lot, but apparently it is not so, and they, like Oliver Twist, are asking for more. Properly looking after the roads, sewers, and drains, one would have thought, in any of our large London boroughs sufficient for any ordinary individual, especially when a depôt, electric light station, or baths and wash-houses are occasionally thrown in; but this apparently is not so, for, not content with licensing wooden structures under Section 84, they are hankering after powers to administer the whole of the London Building Act: and why? Not because they show that in its present hands it is badly administered, but, as Mr. Weaver says, it would lead to a great simplification of the work of the Metropolis; and then he adds (which I presume is his great reason) it would "*lend to elevate the position of the Borough Surveyor.*" The Borough Engineer, unlike a District Surveyor, is not an independent statutory officer, but has to go to his Council or Committee for instructions to proceed, and I assume he thinks that if he administered the Building Act his status would be raised; in fact, one member thought that Borough Engineers should have "a separate and distinct appointment independent of the Councils."

Mr. Weaver went on to state that the convenience to the public would be great under his proposed arrangement "when they thought of the trouble a country builder was put to when he started work in London," and Mr. Winter echoed this sentiment; but they do not say what trouble. It is no greater trouble for a builder, whether he be a country one or otherwise, to go to the Borough Engineer for his drains and the District Surveyor for his building, than it is for him to go to one merchant for his bricks and another for his timber. I maintain that a builder working in London has less trouble than a country one, inasmuch as he is not troubled or bothered with depositing complete sets of plans for rows of small houses, perhaps all alike, and awaiting their sanction, but has only his drain plans to get passed by the Borough Council, and then he can proceed with his work by simply giving notice to the District Surveyor, and by keeping to the rules he will find matters proceed smoothly enough. I have over and over again heard it stated, both by builders and architects, that they wish the London system were adopted in the provinces.

It is only this feeling, that the London Borough Engineer is not on a par with his provincial brother, that is causing this restlessness and coveting of increased status.

But let me return to the wooden structures. It was, I am convinced, a great mistake to have transferred Section 84 to the Borough Councils, and most of us are now beginning to find this out. Sections 82, 83, and 84 are inseparably bound together and should never have been divided. Who is to say what structures come under Section 82 and what under Section 84? The word "structure" is used in both sections, and the trouble arises from there being no definition of what is a "structure" and what a "building." A building is a structure in the ordinary acceptation of the term, but a structure is not necessarily a building; and I maintain that as Section 84 makes no mention of the word "building," the Borough Councils are not entitled to license any structure containing an enclosure and a roof. This, however, they are doing, and, as a case in point, the Borough Council in the district to which I am appointed recently sanctioned a studio 20 ft. by 16 ft., with wooden sides and a wooden covered roof, containing a coal stove and iron flue-pipe. I am perfectly certain the Legislature never intended this, but if I were to take action, which I feel I have the power to do, for its removal, I should perhaps rightly receive little support from the magistrate, who would naturally sympathise with the owner in this conflict of authority.

If this is the way the Borough Councils have commenced to exercise their additional powers, they will next be licensing wooden dwelling-houses, and what would happen if they administered the whole Act one cannot contemplate.

What is required is a reversion of Section 84 to the London County Council to avoid scandal and a conflict of authority—the glorification of the Borough Engineer to the contrary notwithstanding.

A MERE DISTRICT SURVEYOR.

SIR,—In my remarks during the recent London meeting of the Municipal Engineers, reported in your issue of the 4th inst., I made reference to a charge upon eighty wooden huts. I am indebted to the District Surveyor for pointing out to me that such a charge was not made. I find that as the huts were in groups of eight under one continuous roof, the District Surveyor from the first only considered them as ten wooden structures, and not as eighty. Receiving notices to pay fees first on three, and subsequently on seven, huts, no doubt led the builder to expect further notices to include the remaining seventy, as was undoubtedly his view when seeing me some months ago. Whether the huts were charged for as eighty or as ten does not materially affect my remarks, which were directed against the present confusion of jurisdiction. It is, however, better that the facts be correct, and I shall therefore be glad if you will kindly give this note equal prominence with your former report.

E. R. R. NEWTON.

BOROUGH COUNCILS AND WOODEN BUILDINGS.

SIR,—I see that some of the Borough Councils are making great efforts to have the sole management of the London Building Act, so that the members who are "jerry builders" can work the oracle.

The London Government Bill transferred Section 84 to the Borough Councils, and a nice muddle they have made of it.

The first important case which came into the police-court on Tuesday last was decided against them, and should be a warning not to attempt to license wooden buildings.

DISTRICT SURVEYOR.

PROPOSED QUANTITY SURVEYORS' ASSOCIATION.

SIR,—I find that in hastily copying the draft of my last letter the three words in italics were left out of the last clause.

May I trespass upon your goodness to make the correction? The passage should be as follows:—

"Those men who do not at present belong to the Surveyors' Institution will *by joining it* contribute valuable help in the evolution of such of Mr. Wood's proposals as the Institution may deem it expedient to advance."

JOHN LEANING.

SIR,—Will you permit me through the medium of the *Builder* to add my protest against the suggestion to form a new association of quantity surveyors? The multiplication of these small, and therefore impotent, societies constitutes weakness rather than strength by dividing, instead of uniting, members of a profession. I gather from the circular letter which, in common with other quantity surveyors, I have received, that the promotion of the proposed association rests with two gentlemen who are not members of the Surveyors' Institution, but who, according to their third resolution, "fully respect and recognise the value and importance of that body." I think this is the case with a large number of non-members, but this is the first time it has been so openly admitted by any of those who constantly cry "sour grapes." By the next item of their programme it is laid down "that none but properly qualified quantity surveyors be admitted to membership"—a most excellent rule—but it would be most interesting to know what constitutes a "qualified quantity surveyor" in the eyes of the promoters. There would appear to be no intention of requiring intending members to pass an examination, but it is indicated that practising quantity surveyors would be admitted. Now, Sir, because a man has been in practice for a longer or shorter period, it does not necessarily follow that he is a *qualified* quantity surveyor; it may only indicate that he has been very fortunate in the selection of his assistants, or that his errors have not been objectionable to the builder—the only one likely to find them out.

I do not for one moment cast any shadow of doubt on the *bona fides* of the promoters, but believe they intend and desire the membership to be as they state, qualified. But if this should be firmly and to the letter adhered to, the Association would be no more than a sort of private club—unattractive and impotent, and whose small membership would rapidly fall away in dissatisfaction. The management would then have to face the problem of making the Association more attractive by providing good central offices, a library, and other advantages, all of which would require funds. I doubt not that the management would then succumb to the temptation to barter their present heroic intentions for the "filthy lucre" required for the purpose and admit any one who by the widest stretch of imagination could be included in the term "quantity surveyor." These are the only alternatives before a young society, and it is sad to admit that most of them choose the latter in the hour of trial. All the large professional bodies have been through it, but they have this advantage at the present time, that, while being firmly established and wealthy bodies, they have outgrown the indiscretions of their youth.

There is no body so capable or in such a unique position as the Surveyors' Institution for giving effect to all the avowed objects of the proposed association. If it at present does not do so to the satisfaction of quantity surveyors, that is their own fault. It possesses all the necessary machinery, and its membership is Empire-wide. It can "uphold the dignity and importance of the profession" far more effectually than any new body, and surveyors of all branches of the profession would best study their interests by joining the main body, and so strengthening its hands, instead of splitting up the force into impotent factors. The Surveyors' Institution could then more efficiently look after the interests of the profession, and check those abuses so prejudicial to the qualified surveyor and to the public interests.

Certain steps and changes in contemplation by the Surveyors' Institution (which were under consideration before the proposed Association was heard of) will make it more than ever representative of the interests of the quantity surveyor, and I think qualified quantity surveyors will do well to defer for the present any idea of forming a separate association, if—as a body—they ever seriously thought of doing so, which I very much doubt.

HARRY G. ASSITER,
Fellow of the Surveyors' Institution.

SIR,—Will you permit me a few lines to remark upon the stupendous display of eloquence to which Mr. John Leaning treated us in your last issue?

One would have thought that nothing less than a combination of bold, bad men for the purpose of placing a little gunpowder—with a live fuse attached—in the basement of the Surveyors' Institution would have so spurred a man to such a leonine-like roar as that indulged in by that amiable gentleman. Let me pour oil upon his perturbed—not to say tempestuous—spirit.

The Surveyors' Institution is formed of some 3,000 gentlemen, embracing nearly every conceivable profession that can, by any stretch of imagination, be considered even approaching that of a surveyor. Most of those gentlemen have their own independent society—one, indeed, has several; but let a few quantity surveyors project a similar association for their own profession solely, and, lo! Mr. Leaning can see nothing but utter wickedness in such an infamous proposal, and mildly accuses them, amongst other unutterable things, of a desire to filch some cabalistic letters wherewith to ornament their cards.

I was one of those honoured with an invitation to attend the first gathering of the Quantity Surveyors' Association. I did so, but, after reading Mr. Leaning's letter, am, of course, ashamed of myself. But no matter, let us dissemble.

We met—a handful of men—to talk over professional matters; were duly and ponderously dull and respectable in our proceedings; voted a chairman; had a shorthand clerk; passed resolutions, and behaved generally as intelligent beings. Indeed, anything more unlike a swarm of charlatans who breathlessly rushed up several flights of stairs, to appropriate any letters of the alphabet that might have been left carelessly about, can scarcely be conceived.

And now our Mentor takes us to task for something—in fact, indulges in his wrath, in gambols in the fields of poesy, to prove us anathema.

Let him gambol and perform other lively feats; some one hundred gentlemen, including many who can write F.S.I., by examination—think of their awful decadence—have joined the Quantity Surveyors' Association; and I call upon as many more as possible to write the Hon. Secretary, Mr. F. B. Hollis, 17, Bedford-row, for particulars, and then decide if the objects we have in view are worthy working for.

M.

GAS LIGHTING.

SIR,—Permit me, as a reader of your valuable journal, to take exception to the false notion abroad to the effect that gas lighting is becoming a thing of the past. This has been produced from an altogether erroneous statement. The gas used for stoves has enormously increased of late years does not prove that gas lighting is decreasing. As illustrative of the position, the case of this town may be mentioned.

According to the public Press the then Mayor (Mr. Alderman Ernest Woodhead, M.A.) quoted some figures to the Council on November 10 last setting forth the position of the gas consumption during the six years ending March 31, 1902, which are most significant. He stated, as follows, that the gas used for stoves had been:—

Year ending 1902.....	183,642,200	cubic feet.
" " 1896.....	62,176,800	" "
Increase	121,465,400	" "

This increased consumption is about 200 per cent. in the period named.

But the position now contested is that gas for lighting purposes is becoming a thing of the past. For the refutation of this I must again refer to the before-mentioned published statement by the Mayor of Huddersfield. His Worship stated that the amount of gas used for lighting purposes had been:—

Year ending March, 1896..	443,767,500	cubic feet.
" " " 1902..	383,256,600	" "
Decrease	60,510,900	" "

This 13 per cent. decrease on the six years, far from representing less lighting, actually records the reverse, inasmuch as during the period covered by the comparison the Welsbach burners have been largely adopted. Throughout this town the flat-flame burners in the street lamps have been superseded by the Welsbach burners, which consume but 3½ cubic ft., whereas the flat-flame ones consumed 5 cubic ft. per hour (and were charged for at this rate), so that a reduction of 30 per cent. is at once accounted for upon this item, and not only so—the flat-flame burners gave a lighting efficiency of about 2 candles per 1 cubic ft., which, multiplied by the 5 cubic ft., represents a total of 10 candles. The Welsbach burners give about 17 candles per 1 cubic ft., and this, multiplied by the 3½ cubic ft, equals about 60 candles as compared with the 10 before-mentioned, or 500 per cent. increased light for 30 per cent. less gas consumed.

Taking the efficiency of two candles per cubic foot for flat flame burners, and comparing it with seventeen candles obtained from the most common incandescent burners, it will be seen that the light obtained is 750 per cent. more, thus accounting for a reduced gas consumption, but not for reduced lighting. Or the matter may be stated in the following manner:—

If 2,000 candle-power is the efficiency of 1,000 cubic ft. of gas, what amount of gas will be required if the efficiency is 17,000 candles per 1,000 cubic feet?

Answer.

As 17,000 : 2,000 :: 1,000 : 118 cubic ft.

This 118 ft. compared with 1,000 cubic ft. shows a reduced consumption of 88 per cent.; while, as before mentioned, in this town the decrease for lighting purposes in the six years (the period during which the Welsbach mantles have been in vogue) is only 13 per cent. Moreover, the last census unfortunately revealed a slightly reduced population.

It may be stated that the Huddersfield figures for lighting and stove purposes are available on account of the differential prices charged, and there are separate meters for each.

For some purposes as before pointed out in your

columns, gas is infinitely more desirable than electricity, but for others, of course, the contrary is the case. There is not any desire in these remarks to disparage electric lighting, but facts speak for themselves.

It should further be noted that I have only based my calculations upon a candle efficiency of seventeen candles per cubic foot for the most common Welsbach burners, but it is well known that the Kern burners yield thirty candles, and under some improved systems more than eighty candles per foot has been claimed.

It is only fair that a widespread notion arrived at entirely through a misapprehension, should be called attention to. I have ignored, for the present at all events, making any comparisons as to cost, as it is generally recognised that electricity in any form for lighting is a most expensive luxury.

EDWARD A. HARMAN, M.Inst., C.E.

Gas Works, Huddersfield, April 4.

BOOKS RECEIVED.

THE CIVIL ENGINEER'S POCKET-BOOK. By John C. Trantwine. Revised by J. C. Trantwine, jun., and J. C. Trantwine, third. Eighteenth edition. (Chapman & Hall.)

PILGRIMAGES TO OLD HOMES. By Fletcher Moss. (Published by the Author: The Old Parsonage, Didsbury.)

THE COUNTRY GENTLEMAN'S ESTATE BOOK, 1903. Edited and compiled by W. Broomhall. (Published by the Country Gentlemen's Association.)

INFIRMARY, LEYTONSTONE, N.E.

A NEW infirmary for West Ham was opened by Mr. J. Lasham at Whipp's Cross, Leytonstone, N.E., recently. The estate comprises about forty-four acres of gardens, pleasure grounds, and meadow land, together with the mansion house (known as Forest House) and outbuildings, the lodge and cottage (since pulled down) in James-lane, and the cottage at the entrance to the estate in Whipp's Cross-road. The establishment is placed nearly parallel with the Whipp's Cross-road, the main entrance being reached by a roadway across a strip of forest land lying immediately in front of the boundary of the site. Generally, the plan is an administrative block centrally with two ward blocks right and left, connected by a covered corridor running from end to end of the building. Immediately in the rear of the administrative block is the boiler-house, laundry, and machinery building, and to the east of same are detached houses for the engineer and steward. On the south-west side of ward block D is the nurses' home, and near the Whipp's Cross-road entrance are the ambulance and stable buildings and the post-mortem room, mortuary, &c. The accommodation is as follows:—Ward A, six wards of twenty-four each, 144; twelve isolation wards of two each, twenty-four; wards B, C, D, being exactly similar, 504; lunatic ward, two. The whole of the buildings are connected by a complete arrangement of fire-escape bridges, so that every ward has access to other blocks at each floor level, and these bridges are constructed by brick arching. In the administrative, right and left of the large entrance hall, are placed male and female receiving wards, each having attached a bathroom, and close by these wards are corridors connecting the medical superintendent's and assistant medical staff houses. Immediately behind the main corridor is the kitchen, and off this corridor, right and left, are the medical superintendent's office, stores, matron's rooms, workrooms, nurses' and probationers' rooms, dining-rooms, and behind the kitchen are sculleries and servants' hall. On the first floor in the rear are bedrooms for servants, and attached are bathrooms, &c. In the front is the chapel, accommodating 200, and off the main corridor, from this floor, storerooms and tanks in towers are reached.

The basement or lower ground floor of the ward blocks (for, owing to the fall of the land, the back portion is above ground) is chiefly occupied by coal stores, but on the west side are steward's office, meat and milk stores, cellars, &c. Under the main corridor is a subway containing the steam, hot and cold-water pipes, hydrants, electric cables, &c., and the boiler-house is connected to the administrative block by means of a tunnel. Each ward consists of a small central or administrative ward block, containing stairs, lifts, nurses' lavatories, &c., and from the main corridor at each floor level access to the large wards is gained by disconnecting lobbies or bridges. On entering one finds a dayroom, two isolation wards, a nurses' dutyroom, and a linen store. In the tower annexes are the bathrooms and lavatories.

The nurses' home contains separate rooms for seventy-two nurses, superintendent's bed and sitting-rooms, whilst on the ground floor are recreation-rooms, for nurses and probationers, and these two rooms can be thrown into one, when required, for entertainments, &c. The laundry and boiler block consists of a self-contained laundry with washing, drying, and ironing-rooms, with separate provision for staff, clothing disinfecting chamber, and inmates' clothes store, and attached are living-rooms for the head laundress. In line with the boiler-house is the machine-room, containing engines, dynamos, &c., and behind is storage for batteries, &c. At the end of this building there is a carpenter's and smith's shop. The mortuary block contains a post-mortem-room and dead-house, and attached is a small chapel, together with a waiting-room, &c. Adjacent is a stable building.

Between ward block B and the administrative building is the boardroom, access to which is gained through an ante-room from the main corridor at ground-floor level, and adjoining is a lavatory. Immediately under the boardroom there is a room of similar size, which is intended to be used for the purpose of religious services. Next the boardroom and between it and the administrative building is a detached ward, providing accommodation for short-period lunatics, and containing a ward for two, bathroom, lavatory, attendant's-room, and, leading from this, a padded-room. On the opposite side of the administrative block and between it and D block is the dispensary, a detached building connected to the main corridor at ground-floor level; this contains, in addition to the dispensary, an office, and the basement or lower ground floor is occupied by the drug store. Right and left of the entrance hall and chapel building are respectively the medical superintendent's house and the medical staff quarters. The former is a commodious residence for the medical officer, and is connected to the main entrance hall, though the building is detached, and the latter, connected in a similar manner, contains bed and sitting-rooms for three assistant medical officers, together with a common room for dining, &c., and the remaining half of this house is occupied by a suite of rooms for the matron and two assistants. On each floor are two bathrooms and lavatories, &c., and on the ground floor a further lavatory in addition.

Externally the buildings are faced with red bricks, obtained locally, with Bath and Portland stone dressings, the roofs of the chapel, towers, and staff-quarters being covered with green slates. The walls of bathrooms, kitchen, sculleries, dynamo-room, and some stores are faced with glazed bricks, the day-rooms having dados in salt-glazed bricks. The walls of wards are finished with Keene's cement painted, with skirtings in glazed bricks. The corridors are in all cases of fireproof materials, finished with terrazzo, or artificial stone. The buildings are warmed by radiators when necessary, as auxiliary heating to the open fireplaces. Each large ward has a double-fire descending flue stove, and the separation wards have warm-air grates. The electric lighting has been carried out by Messrs. F. A. Glover & Co., Ltd., of London. The lifts were provided and fitted by Messrs. C. & A. Musker, Ltd., of Liverpool. There are eleven lifts in all, four, being one in each of the blocks, A, B, C, D, for patients, four in the same blocks are dinner-lifts, and the remaining three are service-lifts. The kitchens have been fitted by Messrs. Benham & Sons, Ltd. The water supply to the institution is obtained either from the East London Water Co.'s mains, delivered direct to the steel storage tanks in the water towers; or the alternative provision (and the one to be most largely drawn upon) is from the artesian well sunk by Messrs. Isler & Co., to a depth of 400 ft., and which is expected will yield sufficient water to meet the demand of the institution.

Messrs. Shillitoe & Sons, of Bury St. Edmunds, have been the general contractors, Mr. H. Fawcett being the works manager, Mr. T. E. Edmunds has acted as clerk to the works, and Mr. John Buley, of Laurence Pountney Hill, Cannon-street, E.C., has superintended the engineering works for the Guardians, and Mr. A. T. Walmisley, M.Inst.C.E., of Westminster, has acted as consulting engineer to the architect. The stoves and ranges have been supplied by Messrs. Hendry & Pattisson, and Carter & Aynsley; the glazed bricks by Brookes, of Halifax, and the red bricks by Cornish, of Shenfield. The stonework was by F. Mortimer, of Walthamstow; heating and hot-water work by Wontner, Smith, Gray, & Co.; the hydrants by Shand, Mason, & Co.; the road-making by H. V. Manders; the marble mosaic and terazzo flooring by Pattesson & Co., of Manchester, and the Art Pavements and Decorations Co., Ltd.; electric bells, Jackson Bros.; glazing to chapels, Lowndes & Drury; steel tanks, Steavenson & Co.; covering to boilers, Dick's Asbestos Co.; fencing, Bayliss, Jones, & Co., and E. C. White; water softener, Stanhope Water Co.; floor polishing, Ronuk, Ltd.; engineers for well pumps, J. Reedman & Co. Mr. Crow, of Stratford, supplied the clock and bells. The architect to the Guardians is Mr. Francis J Sturdy, of London. The amount of the building contract was 186,665*l.*

CLUB, AMBLE, NORTHUMBERLAND.—A new club has been erected at Amble. It is a stone erection, and is situated in Bede-street. The main entrance is on the north-east side, and on the left is a bar. There is also an entrance on the north side. The building contains a dining-room, 22 ft. by 18 ft. A reading-room, with separate entrance, is situated at the north side. The first floor is approached by means of a staircase. At the right of the landing is a billiard-room 30 ft. by 24 ft. The first floor also contains games and smoke rooms. The architect is Mr. Geo. Reavell, jun., of Alnwick, and the contractors Messrs. R. Carse & Sons, Amble.

GENERAL BUILDING NEWS.

WESLEYAN CHURCH, BROOMHILL, NORTHUMBERLAND. — A new Wesleyan Methodist church has been erected at the Red Row, Broomhill. The new premises comprise a chapel and schoolroom to seat 400 people. The schoolroom has been so arranged as to form part of the chapel by a sliding partition. The architect was Mr. J. W. Taylor, of Newcastle, and the contractors Messrs. R. and G. Brown, of Amble.

ST. LUKE'S CHURCH, HORNSEY.—On the 28th ult. the Bishop of London consecrated the nave and aisles of the permanent Church of St. Luke, Hornsey, built from the designs of Messrs. Cutts. The church has seating accommodation for about 600.

CHURCH, FORRES.—The plans prepared by Mr. John Robertson, architect, Inverness, have been accepted for the church which is about to be erected in place of the old Parish Church of Forres.

WESLEYAN CHAPEL AND SCHOOL, SWANSEA.—Competitive plans were recently invited for a new Wesleyan chapel and school at Swansea. The Committee have decided to accept the scheme submitted by Mr. W. Beddoe Rees, of Cardiff, and have given him instructions to proceed with the work. The estimated cost of the whole scheme is about 6,000*l.*

CHURCH, WINSON GREEN, BIRMINGHAM.—The foundation stone of the Bishop Latimer Memorial Church, Handsworth New-road, was laid by the Right Rev. Dr. Perowne, on the 4th inst. The edifice is designed to accommodate 1,000 worshippers. Mr. W. H. Bidlake, architect, of Birmingham, has prepared designs for a nave, aisles, and chancel, with choir transept on the north side and a tower 100 ft. high on the south side. The length of the church will be 150 ft., and the breadth 59 ft. The walls will be of Staffordshire red brick outside, and buff brick inside. The dressings, window tracery, and interior arcades will be of white Grinshill stone from the Shrewsbury district. In addition to the font, there will be a baptistry at the west end of the south aisle for the total immersion of adults. Messrs. W. Sapcote & Sons are the builders.

BOARD SCHOOL, SUNDERLAND.—A Board school built by the Sunderland School Board was opened on the 1st inst. The building is situated in Hudson-road, and is capable of accommodating 500 boys and girls. The architect was Mr. J. Eltringham, and the contractor Mr. G. H. Hodgson, both of Sunderland.

METHODIST CHAPEL, PENZANCE. — The new church at Alexandra-road, Penzance, was opened on the 27th ult. The building is Gothic in style, and cost 3,000*l.* It is built of dressed granite and stone; it consists of the chapel, minister's and other vestries and church parlour, and schoolroom, and other offices. The contractor was Mr. E. Plowell; the architects, Messrs. Frith & Son, Oldham; and the clerk of works, Mr. Sandrey, St Ives. The length of the building is 88 ft., and the height 26 ft. The chapel outside is 62 ft. long, 38 ft. in width. The schoolroom is 34½ ft. in length, and 24 ft. in breadth. The tower is 60 ft. high. The chapel will accommodate about 360 persons.

BRADFORD TOWN HALL EXTENSION.—The proposal which has been on foot for a considerable time, having for its object the provision of extra accommodation for the clerical staffs of the various municipal departments in Bradford, was considered by the Finance (Town Hall Extension) Sub-committee of the Bradford Corporation on the 1st inst. The Sub-committee had before them a supplementary Report by Mr. Norman Shaw, R.A., which confirmed generally the opinion he expressed verbally on February 11 last with reference to the proposed extension. The Sub-committee also had before them a Report by the City Architect (Mr. Edwards), together with an amended estimate of the cost of the scheme as modified in accordance with Mr. Norman Shaw's suggestions. The amount of this estimate is 75,000*l.* After considering these Reports, the Sub-committee resolved that "owing to the urgency of the matter, and particularly to the great and growing inconvenience and overcrowding, the extension of the Town Hall and Municipal Buildings be forthwith proceeded with." Mr. Norman Shaw is, it is stated, to be retained as consulting architect, and together with the City Architect he is to proceed at once with the preparation of detailed plans and working drawings.

WORKHOUSE INFIRMARY, NORTH EVINGTON, LEICESTERSHIRE.—The foundation stone of a workhouse infirmary was laid on the 2nd inst. at North Evington. The site of the new infirmary is about two miles from the centre of the town, and is approached by the Gwendolen-road. It comprises a little over 62 acres of land. The cost of the buildings will be 79,575*l.* The infirmary is designed to accommodate at present about 520 patients, but is so arranged that the administrative departments will be sufficiently large to allow at any time of an addition of another 300 beds. The infirmary is planned on the pavilion principle, the patients being accommodated in four pavilions or blocks to contain 128 beds each, on two floors. Two of these pavilions will be for males and the other two for females. The male pavilion will be separated from the females by the administrative block, which will

occupy the centre of the infirmary, with the two male pavilions on one side and the females on the other, the same being connected to the administrative block by a covered corridor. This will be open at the sides, but will have a flat roof, forming an ambulatory between the pavilions on the first floor. Under this corridor there will be a subway, in which will be carried all pipes, electric wires, &c., and to which access will be obtained from any of the pavilions. A proper ward for the reception of patients is to be provided for each sex, between the two pavilions on either side, communicating direct with the main corridor, where the patients can be received and drafted to the proper wards. Cottages for the porter and engineer are designed near the entrance to the sites. In a secluded corner will be the mortuary, and in the eastern corner a small isolation block for infectious cases. Each of the four pavilions will be divided into twelve wards, four of these containing twenty-eight beds each, and four three beds each, the remaining four being single-bed wards for special cases. There will be four large day rooms and four duty rooms in each pavilion. At the back of the administrative building, approached by a covered way, will be the laundry. The new hospital is from designs prepared by Messrs. Giles, Gough, & Trollop, architects, London. The contractors are Messrs. M. Moss & Sons, Ltd., Loughborough, and the clerk of the works is Mr. C. H. George.

SCHOOL, PONTNEWYNYDD.—This building has just been opened by Mr. Reginald M'Kenna, M.P. for North Monmouthshire. The school was erected from plans designed by Messrs. Lansdowne & Griggs, architects, Newport, the contractors being Messrs. Bailey Bros., Builders, Pontnewynydd.

ROYAL ISLE OF WIGHT COUNTY HOSPITAL.—At a special meeting on the 3rd inst., the governors considered a report and plans prepared by Mr. T. W. Cutler, for an entire remodelling of the hospital buildings at a computed cost of 18,300*l.* The governors resolved to proceed, for the present, with so much of the scheme as relates to the erection of a sanitary tower, new isolation wards, a fireproof staircase and improved sanitary arrangements. The works will involve an estimated outlay of 6,000*l.*

HIPPODROME AND THEATRE, PORTSMOUTH.—The Board of Directors of the Portsmouth Empire Palace Co. have decided on building a new hippodrome on a site which they have acquired in the town. The plans provide for a structure with accommodation for 3,000 persons and seats for over 1,500. Provision is made for a very large stage at one end. Plans have also been deposited with the Borough Engineer for a theatre proposed to be erected at Southsea. The theatre has been designed by Mr. Matcham, of London. It is to be built on a site now occupied by several business premises at the corner of Exmouth-road and Albert-road. Seating is provided for 3,700 persons, and there will also be accommodation for another 800 or 900.

BUILDING OPERATIONS IN LIVERPOOL.—The Liverpool City Building Surveyor (Mr. William Goldstraw), in his report on the work of his department for 1902, states that the number of houses erected during the twelve months was 2,061, an increase of ninety-eight over the corresponding figures for 1901, and 274 above the average of the six years since the extension of the city in 1895. In West Derby 776 new houses have been erected, in Wavertree 509, Walton 482, in the old city 227 (including 118 tenement houses built by the Corporation), and Toxteth Park sixty-seven. West Derby heads the list for both 1902 and 1901. In the two preceding years Wavertree was at the top. Compared with 1901, West Derby shows an increase of 192 new houses built, Walton ninety-one, Wavertree thirty-four, the old city a decrease of eighty-nine, and Toxteth Park a decrease of 130. Since the extension of the city boundaries in 1895, the number of houses built is as follows:—Wavertree 3,315, Walton 2,863, old city 2,761, West Derby 2,671, and Toxteth Park 1,732—total, 13,342. Of this number only 555 houses were built in 1895, so that all the houses erected in the enlarged city in the seven years amounted to 12,787. On the general building work of the city, Mr. Goldstraw says there is nothing calling for special remark, except that public buildings, offices, and manufactories are rather fewer than they were in each of the last two years, and that new warehouses, which have averaged three annually for the last six years, are not represented by a single case during 1902. Besides the 2,061 new houses, 123 new workshops, stables, and minor buildings have been erected during the year, and 29 new public buildings, offices, and manufactories. Buildings taken down number 548, which includes 335 insanitary houses demolished by the Housing Committee. In the previous year the number of such houses demolished was 174.

DUMBARTON MUNICIPAL BUILDING.—The new Municipal buildings at Dumbarton have just been opened. Mr. Jas. Thomson, Glasgow, was the architect of the buildings.

FIRE STATION, CLAPHAM.—A new fire station at Clapham was opened recently. The building, which will form the headquarters of the "E" district, comprising the south-western part of London, has been erected from designs prepared by Mr. W. E. Riley, the Architect to the London County Council, at a cost of 13,250*l.*, the price paid for the freehold being 3,000*l.* The street elevations are of red brick, relieved on the old town front and a portion of the return front to Grafton-square with Portland stone dressings.

INSURANCE OFFICE, EDINBURGH.—New premises are to be erected in Princes-street for the North British and Mercantile Insurance Company. The architects are Messrs. Peddie & Washington Browne, Edinburgh. The buildings will consist of a block facing Princes-street, and a block at Rose-street, with a connecting portion one story in height running between the two and containing all the principal offices of the company.

DRILL HALL, WREXHAM.—A new Volunteer Drill Hall has just been opened by Lord Roberts at Wrexham. The new drill hall is of pressed brick and terra-cotta. The main hall is 130 ft. long by 60 ft. wide, the roof being of glass. The floor has an area of 7,300 sq. ft., and is paved with wood blocks. Including a gallery capable of seating 160 people, the building offers seating accommodation for between 1,800 and 2,000 persons. The hall is furnished with a large collapsible stage, as well as reading, recreation and billiard rooms, and a residence for the sergeant-major. The architect was Mr. J. Gummow, of Wrexham, the builders being Messrs. Davis Bros., also of Wrexham.

NEW FLATS, BAYSWATER.—A large building, to be called "Queen's Court," is about to be erected in the Moscow-road, Bayswater, under the direction of Messrs. Palgrave & Co., architects, Westminster. The building will consist of thirty self-contained residential flats, ranging from six to eight rooms. It will be approached by an ornamental garden court laid out with carriage drive, fountain, &c. The elevations will be carried out in red bricks with gauged brick aprons, arches, &c., and the roofs covered with green slates. There will also be electric passenger lifts to all floors. Mr. C. Gray, of West Hampstead, is the contractor. The estimated cost is 30,000*l.*

SANITARY AND ENGINEERING NEWS.

NEW RESERVOIR, RUGBY.—On Tuesday last week the new reservoir at Brownsover Mill, in connexion with the Avon waterworks, was opened. Some years ago the Rugby Town Council, on the advice of the Medical Officer and their present Surveyor (Mr. Macdonald), purchased Brownsover Mill and the mill rights connected therewith, but in order to impound the water in sufficient quantity it was necessary to obtain an Act of Parliament. The water up to the present has been taken from the River Avon at a point alongside the waterworks, where it was liable to contamination by the Hillmorton Brook and flood water from the Rugby streets. The Council decided to construct a reservoir at Brownsover Mill, and to build two new filter beds, but did not deem it necessary under their improved arrangement, to go to the expense of a settling tank. Mr. Macdonald, the surveyor, was instructed to prepare the necessary plans, specifications, and quantities, and to invite tenders for the work; the filter beds were first put in hand and completed (the cost being 4,000*l.*), and these have been in use for some time. In due course tenders were invited for the larger works, and Mr. Joseph Young, of Rugby, having sent in the lowest tender, secured the contract, the total cost being about 8,000*l.*, which was well within the surveyor's estimate. The work was commenced in May, 1902, and after ten months has now been completed and the water connected to the town. The reservoir has a capacity of about 3½ million gallons, it is surrounded with concrete walls, and has ample provision for dealing with flood water to prevent its pollution. Mr. Young was the contractor for the work.

CARDIFF'S WATER SUPPLY.—At a meeting of the Cardiff Water Works Committee on the 3rd inst., the Water Works Engineer (Mr. Priestley) reported that all the storage reservoirs had again been full and overflowing throughout the month. The quantity passed over the waste weir at Cantreff had been 1,800 million gallons approximately. The rainfall for the month at the principal stations had been as under, compared with March, 1902:—Ely Station, 1903, 5·75; 1902, 2·36. Lisvane, 1903, 4·70; 1902, 2·45. Cantreff, 1903, 12·35; 1902, 4·39. Beacons, 1903, 15·91; 1902, 4·84. The Engineer added that the mean rainfall at the Beacons for March for the past fifteen years had been 5·54 in. The rainfall at this station had never been so high since the readings had been taken; the nearest approach being in March, 1897, when it was 11·91 in. Since January 1 to April 1 this year the rainfall at this station had been the highest registered—41·98 in.

CONWAY AND COLWYN BAY WATER SCHEME.—On the 3rd inst., at the Guildhall, Conway, Mr. F. H. Tulloch, M.Inst.C.E., an Inspector of the Local Government Board, presided at an inquiry with reference to an application by the Conway and Colwyn Bay Joint Water Supply Board for power to borrow 24,750*l.* for works of water supply. Mr. T. B. Farrington is the engineer, and Mr. Bryan the consulting engineer.

FOREIGN.

FRANCE.—M. Chaplain has been appointed Professor-in-Chief in the Atelier of Metal-Engraving, &c., in the Ecole des Beaux-Arts, in place of the late M. Ponscarme.——The New Salon at Paris will open on April 16.——The Municipality of Paris is obtaining powers for borrowing a sum of 45 million francs, to be expended in rebuilding a certain number of the hospitals in the city. The scheme of this work will be laid out by a committee in which are included the following architects: MM. Bouvard, Nénot, Pascal, Bunel, and Girault.——M. Bernier has given, as a subject for the final Prix de Rome competition in architecture, "Une Place Publique."——A new post and telegraph office is to be built at Clermont.——The Palace of the Tribunal at Mantes is to be rebuilt, with a monumental façade towards the Avenue de la République.——The Municipality of Limoges has opened a public competition for a new circus on the Place de la République. The estimated outlay is 400,000 fr.——M. Bénard, architect and Professor at the Ecole des Beaux-Arts, has been commissioned by the Mexican Government to build a Government Palace and various other buildings, over which altogether about 30 million francs are to be spent. The work will occupy about seven years.——The death is announced of M. Edouard Garnier, Curator of the Museum at Sèvres, and author of a number of important works on ceramic art, in regard to which he was an acknowledged authority.——M. Allasseur, the sculptor, is dead, at the age of eighty-four. Among his works may be mentioned the "Moïse Sauvé des Eaux," which brought him a "première médaille"; the statue of Rameau in the peristyle of the Opera House, and various decorative sculptures at the Louvre, the Hôtel de Ville of Paris, and the theatre of Cherbourg.

MISCELLANEOUS.

PROFESSIONAL AND BUSINESS ANNOUNCEMENT.—The firm of Messrs. Mainzer & Co., artists and workers in mosaic, 18 Berners-street, has been formed into a new company under the title "Arrolithic Ltd.," which will continue the business, with Mr. Mainzer as Managing Director, and Mr. Alfred Seear as Art Director.

NIGERIAN MAHOGANY.—An official report recently received at the Colonial Office mentions that the timber industry in the Southern Nigerian Protectorate already shows satisfactory results; 3,000 logs of mahogany were shipped from the Western division of the Protectorate alone in the year 1901, representing a value of some 90,000*l.* The industry being not yet three years old, this must be considered a fair beginning. In fact, the timber trade is still in its infancy in the territories, and is capable of great development. It has already given, and will still further give, a return for any outlay incurred. It is worthy of the attention of merchants in itself, apart from any general commercial business which may be undertaken in the Protectorate.

A HINT TO FIRE-BRICK MANUFACTURERS.—Mr Vansittart, British Consul for the district of New Orleans, U.S.A., says in his annual report on the trade and commerce for the year 1902:—"I am informed by the Salmon Brick and Lumber Co., of this city, that there might be an opening for fire-bricks from the United Kingdom provided they could be placed on the market at New Orleans at 20 dols. (4*l.* 2s. 6d.) per 1,000. The measurement of the bricks should be 4½ in. by 9 in. by 2½ in. The present duty on bricks is 1 dol. 25 c. (5s. 2½d.) per ton. Fire-bricks are in great demand in places adjoining this city for building purposes, and at present come chiefly from St. Louis. Formerly a large number of fire-bricks used to be imported from Liverpool per Harrison line of steamers."

PARISH CHURCH, YAXLEY.—It is announced that the Earl of Carysfort, who is lord of the manor, has subscribed 2,000*l.* towards the proposed restoration of the parish church of St. Peter, at Yaxley, county Huntingdon. The church, one of the finest in the county, is cruciform on plan, and consists of chancel and nave, each having a clearstory, aisles, transepts, and an embattled west tower with pinnacles joined by quatrefoil flying buttresses to a lofty and crocketed octagonal spire. The older portions of the fabric are Decorated, the other parts being late Perpendicular, in style. The interior, having room for 500 sittings, contains piscinæ and aumbries in the chancel, south chantry, and transepts; a piscina and three-foiled graduated sedilia are in the north chantry; across the chancel arch is a lofty oak Perpendicular screen. Sixty years ago was discovered, behind a stone sculptured in relief, with two hands holding a heart, a little wooden box containing a human heart, supposed to be that of William of Yaxley, who was Abbot of Thorney at the close of the thirteenth century.

ROYAL COMMISSION ON LONDON LOCOMOTION.—Sir D. Barbour presided on Friday last week at the Caxton Hall, Westminster, over the fourth sitting of the Royal Commission when evidence was given by Mr. A. C. Morton, Chairman of the Streets Committee of the City Corporation. Mr. Morton strongly advocated the appointment of a tribunal to whom all questions of locomotion for London should be relegated, and the decisions of such a tribunal

should be final. He instanced as a case in point of the need for such a tribunal the condition of Ludgate Hill Station, which the Corporation had vainly been endeavouring to get remedied for four and a half years. He advocated the retention of the power of veto in the hands of Local Authorities with regard to tramways, because it allowed Local Authorities to obtain terms from promoters. It might be that the London County Council had suffered from Local Authorities withholding their consent to tramways in consequence of questions of street widening arising, but would not say that the London County Council had unjustly suffered, because the Local Authority would be the best judge as to whether a road required widening.

WARRINGTON ELECTRICITY WORKS. — On the 31st ult. Mr. F. A. Tulloch conducted an inquiry at Warrington on behalf of the Local Government Board into an application of the Corporation for sanction to borrow 20,000*l.* for extensions at the electric light generating station at Howley. The money is to be spent entirely on additional plant in order to meet the increasing demands for electricity for lighting and power purposes.

"SELL'S WORLD'S PRESS."—The twenty-third volume of "Sell's Dictionary of the World's Press" for 1903 has been issued from 167, Fleet-street, E.C. It contains several interesting original articles on newspaper matters, besides comprehensive lists of newspapers. The magazine list, the classified lists of trade papers, and the lists of Colonial papers have all been brought up to date. In the magazine list particulars have been added as to date of issue. The thumb-index gives, first the index, then the London papers, the English provincial papers, the Irish papers, the Scotch and Welsh papers, the magazines, and, lastly, the Colonial and principal foreign papers. In this work particulars are given of every town throughout the British Empire in which a paper is published, together with particulars of the principal papers themselves. In regard to the papers of the British Isles, the name is given of every town and village in which a paper is published, the market days, distance from London, &c. The total number of papers in the British Isles is now 2,547; of these London is responsible for 550. The number of magazines is 1,634, while there are 233 quarterly reviews of every kind. The work is clearly printed, and appears to be thoroughly up-to-date and reliable. It is a most useful work of reference.

THE ROYAL ARMS ON BUILDINGS.—A novel point has arisen in respect of the display of the Royal Arms as affixed on the outside of commercial premises. Mr. Henry Glave, tenant of a long row of shops in New Oxford-street, was summoned at Bow-street last week for using, in connexion with his millinery and drapery business, the Royal Arms in a manner calculated to lead people to believe that he had authority from his Majesty to do so. Mr. Glave's name is not entered on the register of Royal Warrant-holders. His son and partner, Mr. Nolan Glave, stated that the firm had never represented themselves to be possessors of that privilege. It happens, however, that their range of shops forms the ground floor—originally constructed for an arcade—of a block of buildings erected nearly sixty years ago, which bears on its front the Royal Arms many times repeated, and carved in stone set within squared reveals or recesses which alternate in both size and shape with the windows of the third floor The line is 40 ft. above the footpath, and the devices are invisible from that side of the street, being sunk in the recesses. The stone carvings form a constituent and ornamental feature of a façade which presents an uncommon and appropriate design. The premises are Crown property; they were leased by her late Majesty's Woods and Forests more than fifty years ago to Messrs. Glave, and a covenant in the lease stipulates that the architectural decorations and walls of the building shall not be cut or otherwise altered. We may point out that the houses form a homogeneous block erected on the north side of the road (between Bainbridge-street and Dyot-street) when New Oxford-street was laid out in 1845-6, through the "Rookery" of St. Giles. The buildings further eastwards, and those on the south side of the new street were similarly treated; a block constructed of red brick with stone dressings, standing beyond Museum-street, was designed after the Jacobean style by, we believe, Wigg & Pownall, architects of the similar houses (since somewhat modified) on the garden terrace of Staple Inn. Mr. Glave, who, it seems, was summoned at the instance of the Royal Warrant Holders's Association, informed the presiding magistrate that the removal of the stone carvings and the making good of the walls above his ten shops would cost about 30*l.*, and that he was quite willing to take them down forthwith if his landlords would defray the expense. The summons was adjourned to enable him to come to some arrangement with the landlords with a view to the obliteration of the carvings.

THE LABOUR MARKET IN THE COLONIES.—The April circular of the Emigrants' Information Office (31, Broadway, Westminster), states that a new pamphlet with a map has been issued on the Orange River Colony. This is the best season of the year for emigration to Canada, and there is an excellent demand for almost any kind of labour all over the Dominion. At Sydney, in Nova Scotia, there is a good demand in the steel and iron works and in the coal mines for general labourers, machinists, machinists' helpers, and coal miners, especially those who can operate coal cutting machines. Both in Nova Scotia and Ontario men, skilled and unskilled, are wanted for sanitary earthenware works and brickyards. The building trades are busy in all parts, and carpenters, bricklayers, plasterers, and others are wanted. The metal trades are very busy in Ontario. In British Columbia the metal and building trades are fairly busy. In New South Wales and other Australian States the long drought has now, to a great extent, broken up; but it will be some time before its effects will have passed away. A report from Sydney states that trade is very bad in New South Wales generally, as well as in Sydney itself. The engineering trade is very dull, and no more mechanics whatever are wanted. The building trades are better off owing to some Government work being in hand. In other parts of Australia there is little demand for more labour, as the country is still suffering from the effects of the drought. In New Zealand there is a good demand for men in the building trades at Auckland, Christchurch, Dunedin, and other places. In Cape Colony there is a demand for plasterers, bricklayers, carpenters, and first-class painters. In Natal there has been a good demand for certain classes of men on the railways, but these have now been sent out by the Agent-General and no more are wanted. A good deal of work is going on in the building and other trades, but the local supply of labour is generally sufficient, though specially skilled men, if they land with a little money, should be able to procure work without difficulty. Wages are high, but the cost of living is high also. There has been a strike of bricklayers at Durban. Permits are still required by those proceeding to the Transvaal and Orange River Colony; they are not issued in this country, but must be applied for at the Permit Office at the port in South Africa at which the emigrant lands. Application forms may be obtained at the Emigrants' Information Office and elsewhere. In the building trades at Johannesburg materials are coming up from the coast somewhat more quickly, and consequently men in those trades have been better employed, but a good many are still out of work. In the Orange River Colony there is a fluctuating demand for good carpenters, masons, fitters, and painters. The cost of living is very high. Permits are necessary (see above).

HOLY TRINITY CHURCH, HOXTON.—Dr. Tristram, K.C., Chancellor of the Diocese of London, has consented to the issue of a faculty from the Consistory Court for the erection at an estimated cost of 2,000*l.* of a parish-hall upon the west portion of some vacant and unconsecrated ground that surrounds Holy Trinity Church, in Shepherdess-walk. The church was built in 1848, in pursuance of the Church Building Act, upon land conveyed to the Ecclesiastical Commissioners; the freehold of the vacant land is vested in the vicar as trustee for the parishioners. The proposed parish-hall, to consist of two spacious rooms on two floors with a total capacity for 450 persons, will form a memorial of the late Reverend John Richard Green, the historian, and the headquarters of the Boys' Brigade. The "John Richard Green Memorial Hall" will thus commemorate the labours in the parish of John Richard Green during the time he was curate there. The parish is densely populated, and a central meeting-place is much needed.

REBUILDING IN THE STRAND.—The new buildings which are now being erected, and will be known as Thanet House, on the south side of the Strand, opposite the Royal Courts of Justice, are planned and designed by Messrs. N. S. Joseph, Son, & Smithem. The ground has been cleared by the demolition of Nos. 231-2, Strand, and of Thanet-place, consisting of a court with nine houses in the rear, covering an area of 7,800 ft. superficial; the freehold of that property, yielding a rental of 550*l.* per annum was sold in November, 1898, for 20,500*l.* The site of the two houses in the Strand, and the Thanet-place property, comprising a total area of more than 8,500 square feet, were let upon a building lease for eighty years, with the option of acquiring the freehold, in June, 1901. Thanet-place, so named after the Tuftons, Earls of Thanet, marked the site of the Rose Tavern, cited for its vine-tree and garden in Thomas Fairchild's "City Gardener," 1722. In two letters he wrote to Cole in 1776 Walpole mentions the painted room at the Rose Tavern without Temple Bar. In 1811 John Martin, the painter of "Belshazzar's Feast," to which the British Institution awarded in 1821 their first premium of 200*l.*, of "The Creation," "The Seventh Plague," and of other once popular pictures, was living in Thanet-place. Martin's engineering projects foreshadowed many schemes that have since been carried out, amongst them being the embanking of the Thames and the diversion of sewage from the river in the Metropolis.

BOARD SCHOOLS EXHIBITION OF WORK.—The annual exhibition of scholars' work from the Board Schools of London will be held at the Examination Hall, Victoria Embankment, W.C. (adjoining Waterloo Bridge), on Saturday, May 9, 1903, and on the following Monday, Tuesday, and Wednesday (May 11, 12, and 13). The exhibition will be opened by Lord Reay (Chairman of the Board) at 12 o'clock noon, and will include specimens of drawings, colour-work, modelling, science apparatus, wood-carving, metal-work, needlework, &c.

IMPORTS AND EXPORTS AT BALTIMORE.—According to a report forwarded to the Foreign Office by Mr. Consul Fraser, the importations of cement to the port of Baltimore, U.S.A., in the year 1902, reached a total of 100,129 tons—82,337 tons more than in 1901, and 50 per cent. more than in 1900. By far the greater quantity came from Germany, the remainder being forwarded from the United Kingdom and France. From the same port the exportations of timber and manufactures thereof in the year 1902, were valued at 368,795*l.*, and Mr. Consul Fraser remarks:—"By far the greater quantity of lumber exported from Baltimore goes to the United Kingdom. There was great activity in the trade during the past year, and about 40,000,000 ft. more were handled than in 1901. Prices went up some 20 per cent."

REGISTRATION FOR PLUMBERS.—The Mayor of Sunderland presided at the annual meeting of the North of England District Council for the National Registration of Plumbers at the Town Hall on Thursday last week. On the proposition of Councillor Kirtley it was resolved: "That this meeting is of opinion that it would be of great public advantage for the Plumbers' Registration Bill, now before Parliament, to be passed into law. The Bill has for its object the protection of the public from the results of incompetent workmanship, and of securing the efficiency and responsibility of plumbers by means of a system of registration. This meeting is further of opinion that it is the duty of the Government, acting in the public interest, to carry through the measures on the conditions already approved by the Local Government Board. Also, that copies of this resolution be forwarded to the President of the Local Government Board and to local Members of Parliament." An interesting address on technical education was given by Professor Branford, Principal of the Sunderland Technical College.

KING'S (LIVERPOOL REGIMENT) MEMORIAL.—A meeting of the Committee regarding the memorial to the officers and men of the King's (Liverpool Regiment) was held at the Town Hall, Liverpool, on the 6th inst., the Lord Mayor presiding. The model, designed by Mr. Goscombe John, A.R.A., was submitted to the Committee, and it was resolved to ask the sculptor to proceed with the work subject to one or two small alterations.

DISCOVERY AT BISHOPWEARMOUTH CHURCH.—In the course of extensive repairs of the exterior of Bishopwearmouth Church, Sunderland, an interesting piece of old Norman work has been brought to light. In removing the coat of cement which covered the base of the tower and the lower portion of the south wall of the nave, there has been exposed to view the ancient Norman doorway at the south of the tower, which had been the principal entrance to the church. The Norman semi-circular arch, and the large irregular side stones, are brought out in all the bold proportions which characterise the Early Norman work. The arch is some 15 ft. high, and formed of three stones only. There is evidence of the arch having been decorated, but the chisel or pick of the restorers mutilated the carved work. The whole of the old walls exposed are of sandstone, and not the limestone boulder which was extensively used in old buildings on Wearside. Many of the stones give evidence of having been taken from an older building, or had been part of the original Norman Church. Some two or three old stones have the same markings upon them, which indicate their having been used for sharpening the arrows of the ancient archers. This discovery of this Norman doorway shows that when the church was rebuilt in 1807, the walls of the old building had not been razed. The new work of the tower and nave has been built upon the old masonry, and the old walling cemented over to be more in unison with the new stonework. The history of the church dates from the days of Athelstan—925-41—but the first Rector recorded was Adam de Marisco, about 1217, and it is probable that the Norman arch revealed to-day is of that date.—*Newcastle Chronicle.*

THE SHEFFIELD CORPORATION'S BUILDING SCHEMES.—The Health Committee, in dealing with the Wincobank Estate, have decided to instruct the City Surveyor to advertise for tenders for houses that will cost, some not exceeding 160*l.* each, and some not exceeding 185*l.* each, to be built on each side of the main street on the Wincobank Estate, each house to have 200 yards of space and to have the accommodation already agreed upon by the Council. With regard to the High Storrs Estate the City Surveyor has been instructed to prepare a plan for the laying out of the estate on similar lines to the plan for the Wincobank Estate, showing approximately 100 houses on the lower portion of the estate near Whiteley Woods. The following resolution was carried, as applying to the foregoing:—"That the High Storrs scheme to be prepared by the Housing of the Working Classes Sub-Committee, shall, if possible, include houses producing a rent of not exceeding 5s. a week, as well as larger rented houses." The Committee are offering to architects premiums of 50*l.*, 30*l.*, and 20*l.* for competitive plans and tenders in connexion with the houses at High Wincobank. The dwellings are to be of two

classes:—(*a*) Containing living-room, scullery, some two and some three bedrooms, bathroom, pantry, coal-place, and water-closet; and (*b*) containing living-room, scullery, three bedrooms, bathroom, pantry, coal-place, and water-closet. The cost must not exceed 160*l.* per house for class (*a*) and 185*l.* per house for class (*b*). Estimates are desired for the erection of 20, 40, 60, 80, 100, or 120 dwellings. The prices named are to cover all drainage work, including connexion to sewer in street, fences, asphalting in yards, garden paths, stoves, baths, and other fittings; in fact, all work except street work and main drainage, which will be carried out by the Corporation.

ISLE OF WIGHT COUNTY HOSPITAL.—Princess Henry of Battenberg presided over a special meeting of the Governors of the Royal Isle of Wight County Hospital, held at the Town Hall, Ryde, on the 4th inst. The assembly was called to meet Mr. T. W. Cutler, F.R.I.B.A., and to consider his report and plans for remodelling the hospital. Ultimately it was decided to expend about 4,000*l.* on the scheme.

A CLOISONNÉ SYSTEM IN MOSAIC.—The Arrolithic Co. (formerly Mainzer & Co.) are introducing a new process of laying mosaic in floors with the intention of providing against the cracking of floors of large dimensions by sub-dividing them into sections by the insertion of metal strips, which have the effect of limiting any crack within the area surrounded by the metal, which may also form an element in the design, the metal strip acting the part of the "cloisons" in enamel work.

CAPITAL AND LABOUR.

NEWCASTLE BUILDING TRADE.—A meeting of Newcastle, Gateshead, and Gosforth operative stonemasons was held at the King's Head Hotel, Newcastle, recently, to consider the proposed code of amended rules put forward by the Newcastle and Tyne District Building Trade Employers' Association. The chief feature of the new code is that the masters desire the workmen to labour nine hours a day instead of eight in the summer months, and seven and half hours from November 1 to February 1 in place of the seven hours now worked in December and January. The men decided unanimously to reject the whole of the new rules suggested.

BUILDING TRADE DISPUTE AT ST. HELENS.—A rupture has taken place in the building trade in St. Helens. The joiners refuse to fix foreign or ready-made joinery, such as doors, window-sashes, &c., and the employers resent the men dictating to them as to where they shall purchase their materials. The masters have decided that unless the men withdraw their opposition there will be a general lockout.

EDINBURGH JOINERS' WAGES.—Some time ago the Edinburgh master joiners sent out a notice to their men giving intimation of a reduction of ½d. per hour on the present rate of wages, which is 9d. per hour, the reduction to take effect from April 15. Four years ago the rate was 9½d. per hour, and it was then reduced by ½d. per hour. Since that time, the men state, attempts have been made to effect a further reduction, but on each occasion the matter was referred to arbitration, and no further reduction took place.

LEGAL.

ACTION BY BUILDERS AGAINST THE ARMY AND NAVY CO-OPERATIVE SOCIETY.

THE case of Martin, Wells, & Co. *v.* the Army and Navy Co-operative Society, Limited, came before the Court of Appeal, composed of Lords Justices Vaughan Williams, Stirling, and Mathew, on the 3rd inst., on the appeal of the defendants from a judgment of Mr. Justice Wright, sitting without a jury, in the King's Bench Division. (The case was fully reported in the issue of the *Builder* of April 26, 1902.)

In this case the plaintiffs, a firm of builders, claimed from the defendants a balance of a final instalment, viz., 2,900*l.* The defendants claimed to set off against that an equal amount of penalties or liquidated damages. The contract between the parties was dated October 20, 1897, and provided for the pulling down of certain premises which had been acquired by defendants at Westminster, and for the re-erection of buildings upon the site. The contract price was 47,179*l.* The contract provided that the contractors should execute the works according to the plans and specifications, the specification being deemed to form part of the contract. The contract also provided that the new buildings should be completed within twelve months, and if there was delay plaintiffs should be liable to a penalty of 10*l.* a day. The contractors had to provide everything of every sort. As the contract was dated October 29, 1897, the work in the ordinary course should have been completed by October 29, 1898. Three months' extension, however, was allowed under Clause 16, which would bring it to January 29, 1899. The works were not, however, completed until January 2, 1900, but defendants limited their claim for penalties to 290 days, which would be up to the middle of November. The plaintiffs' case was that the delay was caused through their sub-contractors failing to deliver the iron and steel work for the building at the specified time, and that the defendants, by their conduct, had waived all rights to penalties. They alleged that the defendants, by having given them orders after the time had elapsed for the completion of the contract, having broken the contract themselves in various particulars, and having failed to give them the possession of the site as and when they should have done, had debarred themselves from claiming penalties. Mr. Justice Wright held that defendants were not, in the circumstances, entitled to claim penalties, and gave judgment for the plaintiffs for the amount claimed with costs. Hence the present appeal of the defendants.

Mr. Reginald Bray, K.C., Mr. McIntyre, and Mr. Turner, appeared for the appellants; and Mr. English Harrison, K.C., and Mr. Hudson for the respondents.

At the conclusion of the arguments of counsel, their lordships affirmed the decision of Mr. Justice Wright, and dismissed the appeal with costs.

ACTION AGAINST BUILDERS FOR ALLEGED BREACH OF CONTRACT.

THE case of Salamans & Co. *v.* Haskins Bros. came before Mr. Justice Wright, sitting without a jury in the Kings Bench Division last week an action by the plaintiffs against the defendants, a firm of builders and contractors, of Old-street, E.C., to recover damages for alleged breach of contract.

It appeared that the plaintiffs are the owners of Nos. 116 and 118, Oxford-street, and they granted a lease to Messrs. Browne & Hollingsworth for a term of twenty years from June 24, 1902. Plaintiffs agreed with the tenants to put in shop fronts and defendants were invited to estimate for the alterations to the premises. Defendants sent in an estimate for the work, and ultimately on June 13 it was agreed that they should do the work, plaintiffs stipulating that it should be speedily done. The plaintiffs' case was that defendants agreed to do the work within four weeks, but defendants alleged that the arrangement was that the work was to be completed by the end of July. Subsequently further work was ordered, but the plaintiffs' case was that the whole work should have been completed on July 18. The work, however, not being finished till August 23 the tenants could not take possession until after that date. The plaintiffs alleged that the delay was caused through the defendants undertaking certain further work for the tenants, and their doing this work before completing the alterations ordered by plaintiffs. It was admitted that some further work ordered by plaintiffs on July 7 caused some delay. The plaintiffs claimed 340*l.*, the rent lost through the alleged breach of contract, or, alternatively, damages for being deprived of the use and occupation of the premises.

The main defence was that the plaintiffs had verbally agreed to an extension of time within which the work was to be completed, and that the delay was the plaintiffs' fault. Defendants counter-claimed for 9*l.* 15*s.* for cutting a granite pilaster to the design of the plaintiffs' architect.

After hearing evidence, his lordship held that the defendants had not been guilty of unreasonable delay, and gave judgment for them on the claim and counter-claim with costs.

Mr. Danckwerts, K.C., and Mr. G. L. Thomas appeared for the plaintiffs; and Mr. Foote, K.C., and Mr. Garland for the defendants.

LIGHT AND AIR CASE—IMPORTANT POINT.

THE case of the *Financial Times, Ltd*, *v.* George Bell & Sons came before Mr. Justice Byrne in the Chancery Division last week. This was an action by the plaintiffs to restrain the defendants, a firm of publishers, from building on certain land in Portugal-street and Clement's-lane, W.C., so as to interfere with the light coming to the plaintiff's premises in Clement's Inn-passage, Portugal-street, and Clement's-lane belonging to the plaintiffs, newspaper publishers and printers, not on the ground that they were ancient lights, but on the ground that plaintiffs took their title from the defendants' predecessor in title, the late Mr. Douglas Gordon MacRae, and that it was, in fact, in derogation of the original grant. The case came before his Lordship on December 5 last, on a motion by the plaintiffs for an interlocutory injunction to restrain the defendants from further building till the trial, and at that hearing defendants agreed not to carry their buildings beyond a certain height, giving an angle of 45 degrees until the trial.

Mr. Levett, K.C., and Mr. Beebee appeared for the plaintiffs, and Mr. Rowden, K.C., and Mr. A. St. John Clerke, for the defendants.

Mr. Levett, in opening the case, said that the premises of the plaintiffs and defendants were separated by a narrow lane, now known as Clement's-lane, but formerly under the name of Gilbert-street, only about 19 ft. 6 in. wide. The plaintiffs held their premises as lessees for the unexpired residue of a term of eighty-two years from June 24, 1896. On May 30, 1896, an agreement was made between Wm. Graham, Frederick Blake, and George Christopher MacRae of the one part, and the late Douglas Gordon MacRae (the then managing director of the plaintiff company) of the other part. This agreement provided that Mr. G. D. MacRae should erect upon the land in question printing works, offices, and outbuildings, and when the buildings were completed according to the stipulations he was to have granted to him by the lessors a lease of the premises for eighty-two years from June 24, 1896, at a certain rent. After this agreement had been entered into, disputes arose between Mr. MacRae and the adjoining owners as to whether or not by building he would interfere with their ancient lights, and to get rid of the disputes Mr. Macrae bought from the trustees of King's College Hospital the plot of land on which defendants' premises were now being built. This plot of land was conveyed to Mr. MacRae on January 4, 1897, and on the next day he mortgaged it to secure the sum of 7,000*l.*; but he paid off this mortgage on April 30, 1900. By April 6, 1897, the plaintiff's printing works and premises were erected to their present height, and about this date Mr. MacRae agreed to sell his rights under the building agreement to the plaintiff company at a price equal to the expense incurred by him in and about the acquisition and incident to the construction of the premises, together with interest at the rate of 5 per cent. per annum. The plaintiff company afterwards entered into possession of the premises, and the lease was granted to them on April 9, 1898. Mr. MacRae had since died, and defendants claimed to build on the second or opposite plot, having purchased it from his representatives. On the plot were now being erected buildings for the *Church Times*, on the further side, which did not come into the present action, and on the nearer portion premises for the defendant company. The learned counsel contended that Mr. MacRae, having sold his equitable lease to the plaintiffs, he could not derogate from his own grant, nor could he make that lease useless by allowing the lights to be obstructed. Plaintiffs were willing to surrender some of their absolute right, and would offer no objection if the defendants' building did not obstruct a free passage of light over an angle of 45 deg. The learned counsel then dealt with the cases on which the defendants relied, namely, "Beddington *v.* Atlee," "Birmingham, Dudley, and District Banking Co. *v.* Ross," "Goodwin *v.* Schweppes," and "Crick *v.* Chapman," contending that the limitations of grant existing in those cases did not apply to the one then before the court.

Evidence having been given by Mr. George Eaton Hart, a director of the plaintiff company, and manager of the printing department, and also by Mr. Francis Bridgwater, a director of the plaintiff company, as to the negotiations with Mr. MacRae and the company, and Mr. Beebee having summed up the case on behalf of the plaintiffs,

Mr. Rowden, in opening the defence, said that the case was a very important one for his clients, because they bought the site for the purpose of building upon it, and if the plaintiffs succeeded in the action it would be practically useless to them. He contended that the plaintiffs had made out no case to have an injunction. In this matter they had nothing whatever to do with the law as to ancient lights. To succeed, the plaintiffs must show a disposition of the grant of the light by Mr. MacRae to the plaintiff company. He submitted that there was no disposition of the light by grant at all. Neither in the lease nor in the agreement was there any implied grant. Indeed, until the lease was obtained Mr. MacRae was only a tenant at will.

Mr. Edward R. Musto, examined, said he carried on business at No. 61, Great Ormond-street, W.C., as a sign and glass writer. For thirty years he had executed work for Patman & Fotheringham. He remembered having an order from them in April, 1897, to write two signboards. Those boards he wrote on the following words:—"For flats, residences, and business premises. To let on lease. For particulars apply to Mr. Walter Emden." Mr. Emden was the architect for Mr. G. D. MacRae. The boards in size were about 5 ft. 6 in. by 4 ft. He remembered seeing one of the boards placed on the vacant plot of land facing Portugal-street. He could not say whether he saw the other board up. The board he saw was placed in position two or three days after he supplied the boards.

Mr. S. H. Egan, examined, said he was manager to Mr. Walter Emden, the well-known architect, and Mr. Emden was then in Berlin and unable to attend to business; otherwise he would have been present to give evidence in the case. He had been with Mr. Emden since 1885, and had been his manager since 1887. He knew the land which was described as the hospital land. Mr. Emden acted for Mr. MacRae in the purchase of that land, and Mr. Emden approved the "conditions" on behalf of Mr. MacRae. It was within his knowledge that Mr. MacRae at that time intended to build on the hospital land. Witness in 1897 prepared the plans for building on that site. The completed plans had been delivered to Mr. MacRae's executors. These plans had been prepared on the instructions of Mr. MacRae, and they were settled on January 28, 1897. The plans prepared contemplated the building over the whole site. Copies of the completed

plans were sent to Mr. MacRae in July, 1897. He knew that the boards mentioned by the last witness were put up on the land. Those boards were put up on the written instructions of Mr. MacRae. He had something personally to do with the proposed letting of the site by Mr. MacRae for building.

Other formal evidence having been given in support of the defendants' case,

Mr. Rowden, in summing up the case on behalf of the defendants, submitted that at the time Mr MacRae entered into the negotiations with the plaintiff company he had no interest in the dominant tenement at all. He was merely a tenant at will until the lease was granted. A tenancy at will was not assignable at all, the tenant being a mere licensee. He challenged his learned friend, Mr. Levett, to point to a single case where it had been held that a grant of an easement could be implied where the dominant tenement was held merely by a tenant at will. A tenant at will had no estate at all. He submitted that that point was fatal to the plaintiffs' case. The evidence was clear that Mr. MacRae's intention as soon as he got the servient tenement was to build to a substantial height.

Mr. Levett, in replying on the whole case on behalf of the plaintiffs, contended that if Mr. MacRae had intended to block the light of the plaintiffs' building, he would have been committing a fraud on the company. Mr. MacRae was the managing director of the company, and he sold to the company the building with the windows in it. The object of those windows was to have the light, and Mr. MacRae could not take back what he had sold. The duty of a managing director of a company was to protect the company. He was in the position of being a trustee for the company. Mr. MacRae had a large interest in this company, and it would have been against his interest to cheat the company. He did not want the company to have printing works where they could not see to print. It was not Mr. MacRae's interest to lay a trap for the company. It was his interest to have a good and effective establishment. The plaintiff company paid for the light 9,000*l.* in cash, and relieved Mr. MacRae from all further burdens under the building agreement Assuming that Mr. MacRae could not have found the money to carry out his obligations under the building agreement, he had every interest in selling to the company. If the company had not come in, away would have gone his rights to a lease, and away would have gone his 9,000*l.* If Mr. MacRae had told the company that he had meant to "drop" the light, the company would never have bought. He contended that the company were entitled to the relief claimed.

Judgment was reserved.

POINT UNDER THE METROPOLIS MANAGEMENT ACT, 1855.

THE case of Kendal *v.* The Metropolitan Borough of Lewisham came before Mr. Justice Kekewich in the Chancery Division last week, an action by the plaintiff, the owner of seventeen houses situated in Montem-road, Forest Hill, Lewisham, for a declaration that an order of the Lewisham Borough Council, dated July 3, 1901, apportioning the paving expenses of the road between the owners of the several houses abutting thereon was void, and for an injunction to restrain the Council from collecting these expenses from the plaintiff's tenants. The plaintiff's case was that the estimated expenses of the paving in question were determined by Mr. Ernest Van Putten, who at the time was not the Surveyor of the Council within the meaning of Section 105 of the Metropolis Management Act, 1855, that section enacting that the amount of the estimated paving expenses should be determined by the Surveyor, for the time being, of the Vestry or Board. It appeared that on July 18, 1900, the Lewisham District Board of Works passed a resolution that Mr. Van Putten, the Assistant Surveyor, should in future be designated a Surveyor to the Board, and on May 8, 1901, the Council, as the successors of the Board, passed a resolution abolishing the office of Surveyor to the late Lewisham District Board of Works, then held by a Mr. Carline, as from March 25, 1901. On September 25, 1901, a resolution was passed appointing Mr. Van Putten Surveyor of the Council from September 25, 1901.

At the conclusion of the arguments of counsel, his Lordship, in giving judgment, said that by Section 105 of the Metropolis Management Act, 1855, the amount of the expenses was to be determined "by the Surveyor for the time being." He thought that expression meant something different from the permanent Surveyor. It was impossible to say that it meant one particular officer. Although Mr. Van Putten was not the permanent Surveyor, he at any rate fulfilled the position of Surveyor for this particular purpose, and was the Surveyor for the time being. He thought that that objection of the plaintiff, as well as other objections he took to the apportionment, failed, and that the action must be dismissed with costs.

Mr. A. Glen, K.C., and Mr. W. A. G. Woods appeared for the plaintiff, and Mr. Macmorran, K.C., Mr. Avory, K.C., and Mr. Poyser for the defendants.

POINT UNDER SECTION 250 OF THE METROPOLIS MANAGEMENT ACT, 1855.

THE case of Silles *v.* The Fulham Borough Council came before the Court of Appeal, composed of Lords Justices Vaughan, Williams, Stirling, and Mathew, on the 7th inst., on the appeal of the defendants from a judgment of Mr. Justice Wright in the King's Bench Division.

It appeared that the plaintiff was the owner of two houses in Fulham, and he brought the action against defendants to recover money spent by him in abating a nuisance which arose from an underground pipe, under a threat of proceedings on the part of the defendants. The main question to be decided was whether the pipe was a drain or a sewer. The two houses joined, and had a gutter running along under the eaves which carried the rain-water from the roof of both houses into a pipe which carried off the bath water, &c., of one of the houses. This down-pipe discharged into a gully, and from thence into the pipe in question which communicated with the main sewer. Mr. Justice Wright held that this pipe was a sewer, and gave judgment for the plaintiff. From this decision the defendants now appealed.

Without calling upon counsel for the respondent (plaintiff) Lord Justice Vaughan Williams in giving judgment following the decision of Mr. Justice Bruce in the case of Holland *v.* Lazarus, and the Divisional Court in the case of Geen *v.* the Vestry of St. Mary, Newington, thought the appeal must be dismissed. In both those cases it was held that where there were two drains carrying sewage matter which ran into one another and served two buildings, and not a block of houses drained by a combined operation sanctioned by the Vestry, the two drains running into one another became a sewer within the meaning of Section 250 of the Metropolis Management Act, 1855. He thought the learned Judge in the Court below had properly applied those two decisions to the present case.

The other Lords Justices concurred.

Mr. Macaskie, K.C., and Mr. S. Mayer appeared for the appellants; and Mr. Mattinson, K.C., and Mr. L. M. Richards for the respondent.

PATENTS OF THE WEEK:

APPLICATIONS PUBLISHED.*

5,979 of 1902.—V. L. THEVENIN: *Locks for Doors and the like.*

An electric alarm lock, consisting in the combination of a lock casing connected with one of the poles of a source of electricity, a plate within said casing, and electrically insulated therefrom, a key the bit of which is provided with insulating strips in such a manner that when this key is inserted in the lock the electric circuit is not closed and the alarm is consequently not operated as would be the case if any ordinary key were employed.

6,532 of 1902.—J. C. M. WILSON: *Apparatus for Opening, Closing, and Automatically Locking Windows and Ventilators.*

This invention relates to apparatus for opening, closing, and automatically locking windows and ventilators. According to this invention, a bracket fixed on the framework of a window or wall is provided to support an arm or lever working on a pivot and having an eccentric slot therein, which slot engages a pin or roller fixed to the movable part of the window or ventilator. The arm may be moved by means of cords, wires, or metal rods. By depressing the arm, the pin or roller is made to travel in the eccentric slot, thereby opening the window or ventilator to any degree desired. When the arm is raised, the window or ventilator is closed and locked by the pin or roller pressing against the top inner part of the circular end of the slot. When the window or ventilator is narrow one bracket with attachments is sufficient, but with heavy windows one bracket and attachment should be placed on each side and connected by a rod so that the two arms work evenly together.

7,217 of 1902.—J. COLLINS: *Hinges or Joints for Screens and the Like.*

Each hinge or joint consists of two side pieces shaped to match the semi-circular edges of the screen, and fastened on by screws. These side pieces have one, two, or more transverse slots in them to receive connecting bars. The connecting bars are jointed by pins or rivets to the side pieces, the centres of the pins or rivets being the same distance apart as the thickness of the screen and keeping the side pieces close together in whatever position the folds of the screen occupy.

12,753 of 1902.—TONKS, LTD., and W. SPARKS: *Fanlight Casement.*

This consists essentially in the employment of a tubular arm hinged or jointed to the one part and a telescopic and screwed arm hinged or jointed to the other part, and the combination therewith of a screw box secured to the end of the tubular arm, and means for rotating the screw box when out of reach.

13,314 of 1902.—J. WALKER: *Window Sashes.*

A window-sash comprising an inner swinging frame, outer sliding portions or frames, said swinging frame being connected at or about midway of its vertical length to the outer sliding portions or stiles by pivots or hinges in such wise that the inner frame when swung inwards for cleaning purposes, hangs vertically in a plane in front of its normal vertical plane.

13,904 of 1902.—E. V. BAILEY: *Manufacture of Cupboard Turn and other like Metallic Knobs and the Means of Connecting such Knobs to their Spindle.*

The manufacture of cupboard turn and other knobs having cylindrical bar pummels, by making such pummels as a separate part from the knob neck, permanently securing these two parts together and also to the spindle through the medium of the said spindle, by passing the pummel and neck up to a shoulder on the spindle end and then rivetting up the head over the latter.

22,062 of 1902.—M. W. NOBLE: *Safety Device for Windows.*

In safety devices for windows the combination of an upper and lower window-sash, a chain, a rigid fastening at one end thereof, a ring at the other end, a hook and means for regulating and opening of the window.

6,468 of 1902.—J. P. BAYLY: *Brick Making and Moulding Machines.*

In a brick making and moulding machine, the combination with an endless series of moulds having compressing dies in their lower portions, a vertically-fitted shaft with spiral blades on it arranged above the mould, a preliminary packing plunger arranged above the mould, and having an horizontal actuating shaft with cams and upwardly moving pressure-blocks arranged below the moulds to act against the dies, and an horizontal actuating shaft for said blocks having lifting cam surfaces on the same for raising the blocks.

9,203 of 1902.—F. W. ADAMS: *Flushing Siphon Tanks or Cisterns.*

In flushing siphon tanks or cisterns, the method of starting a siphoning operation by depressing the ball or float, so as to raise the level of the water.

9,388 of 1902.—H. L. DOULTON and R. J. PLEACE: *Flushing Siphons for Sewage and the like.*

In flushing siphons, the adoption of an auxiliary pipe carried from the bend of the trap to the outlet of the trap for the easier escape of air.

12,207 of 1902.—F. DE MARE: *Electrothermic Ventilator.*

The manner of heating air or other gases by an electric current through a casing ventilator, of which the wings of the turbine are replaced by wires, through which the current passes.

20,557 of 1902.—I. G. WATERMAN: *Electrical Control of the Water Supply of Lavatories, Bath Tubs Shower Baths, and Bowls.*

The combination with a main or feeder circuit and a return circuit, of a flow controlling the return circuit, electro-magnetically operating valves each in a branch circuit, and in circuit with the return circuit aforesaid, a switch controlling the current supply to the branch circuit of the electro-magnets of the valves, means for locking the switch, and an electro-magnet for releasing said locking means, which is in a shunt or branch circuit, and energised on the breaking of the return circuit by the flow.

28,475 of 1902.—J. S. CAMPBELL: *Locks and Fastenings.*

A lock convertible into a spring push-fastening-comprising a plurality of detachable concentric tubes, one of which carries the master key-hole and the other encloses a slotted movable and changeable disc (or a plate) which, when brought into register, by means of a key, with said master key-hole allows the key to enter this and then act directly and release a retaining catch, a third tube (or a rod) being in some cases employed to form a push-piece on which the key then acts and causes it to release the retaining catch.

23,280 of 1902.—H. PAUL: *Stone Cutting or Shaping Machine.*

A stone cutting or shaping machine, consisting of a large-toothed wheel driven by a worm around a horizontal axis and provided on its face with holders, each of which carries a series or row of knives or cutters, whose cutting edges are arranged in a radial line from the centre of the wheel, and a table for supporting the stone to be operated upon in front of the wheel and provided with suitable gear for causing the forward or backward travel of the same.

24,692 of 1902.—G. H. HOLTZMANN: *Hinges.*

A hinge comprising two parallel connecting rods located in the same hurizontal plane, means whereby the adjacent ends of said rods may be pivotally connected to a door and a fixed member in the form of a shaped metal casting to which the opposite ends of said rods are pivotally connected.

* All these applications are in the stage in which opposition to the grant of Patents upon them can be made.

MEETINGS.

MONDAY, APRIL 13.

Bristol Society of Architects.—Annual general meeting Election of Council and Officers. 8 p.m.

WEDNESDAY, APRIL 15.

Builders' Foremen and Clerks of Works' Institution.—Quarterly Meeting of the Members. 8 p.m.

Edinburgh Architectural Association. — Associates business meeting. 8 p.m.

SATURDAY, APRIL 18.

Edinburgh Architectural Association.—Visit to Edinburgh of the Glasgow Architectural Association, where a number of buildings will be inspected.

SOME RECENT SALES OF PROPERTY:

ESTATE EXCHANGE REPORT.

March 20.—By MORRIS & PLACE (at Nottingham).

Nottingham.—Mansfield-rd., The Mapperley Hall Estate, 129 a. 3 r. 36 p., f. £74,500

By G. B. HILLIARD & SON (at Chelmsford).

Blackmore, Essex.—Blackmore Wood, 37 a. 0 r. 22 p., f. 620

March 24.—By MORRIS, MARSHALL, & POOLE (at Wentnor).

Wentnor, &c., Salop.—Freehold farm, house, and 66 a. 1 r. 15 p. 1,900

Allotment of land, 78 a. 2 r. 4 p., f. 300

Freehold cottage and 0 a. 0 r. 38 p. 105

Various enclosures of land, 58 a. 1 r. 39 p., f. .. 1,690

A small holding, 14 a. 3 r. 4 p., f. 450

March 26.—By CHINNOCK, GALSWORTHY, & Co. (at York).

Guisborough, Yorks.—Galley Hill Farm, 85 a. 0 r. 6 p., f., y.r. 113*l.* 9s. 4,000

Morton, Yorks.—Morton Carr and Morton Grange Farms, 585 a. 3 r. 20 p., f. y.r. 619*l.* 9s. 16,600

By RAYNER & BRIDGLAND (at Gravesend).

Gravesend, Kent.—Wrotham-rd., Ruckland House, and 1 a., f. 3,900

6 and 7, Horn-yd., f., w.r. 26*l.* 200

16, Crooked-la., f., w.r. 13*l.* 100

Saddington-st., Farringdon House, f., y.r. 19*l.* .. 355

13, High-st. (S), f., y.r. 65*l.* 1,200

By GRIMLEY & SON (at Birmingham).

Longbridge, Worcester. — Bromsgrove New-rd., the Colmers Estate, 33 a. 1 r. 22 p., f. 3,525

March 27.—By FREDK. WARMAN (at Crouch End).

Finchley.—Western-rd., Llantarnam, u.t. 91 yrs., g.r. 6*l.* 17s., y.r. 50*l.* 540

By PROTHEROE & MORRIS.

Caledonian-rd. — 5, Delhi-st., u.t. 55 yrs., g.r. 6*l.*, y.r. 33*l.* 325

By RIDER & SONS.

Notting Hill.—207, 209, and 211, Lancaster-rd., u.t. 60 yrs., g.r. 21*l.*, w.r. 147*l.* 18s. 1,060

March 28.—By C. M. STANFORD (at Colchester).

Great Horkesley, Essex.—The House Farm, 60 a. 0r. 39 p., f. and c. 1,300

An enclosure of land, 5 a. 3 r. 23 p., f. 105

March 30.—By BAXTER, PAYNE, & LEPPER.

Bickley, Kent.—Southborough-rd., Springhurst and 3 r. 17 p., f., p. 2,990

Beckenham, Kent.—51, Copers Cope-rd., u.t. 60 yrs., g.r. 7*l.* 5s., y.r. 45*l.* 500

Bromley, Kent.—Park-av., a freehold building plot 200

London-lane, a freehold building site 250

41, Recreation-rd., u.t. 75½ yrs., g.r. 4*l.*, w.r. 18*l.* 4s. 125

By ELLIOTT, SON, & BOYTON.

New Oxford-st.—112 (S), u.t. 22 yrs., g.r. 52*l.* 10s., y.r. 210*l.* 1,950

St. John's Wood.—8, Hamilton-ter., u.t. 20 yrs., g.r. 10*l.*, p. 720

By FRITH, GARLAND, & Co.

Hornsey.—53, Raleigh-rd., u.t. 80 yrs., g.r. 6*l.* 6s., y.r. 32*l.* 345

Hampden-rd., f.g.r.'s 36*l.*, reversion in 94 yrs... 830

Hampden-rd., a freehold building site..... 500

Tottenham.—6, Bruce-villas, u.t. 95 yrs., g.r. 6*l.*, y.r. 32*l.* 210

By WAGSTAFF & SONS.

Highbury.—Highbury-cres. West, f.g.r.'s 14*l.* 10*l.*, reversion in 40 yrs. 1,250

Tottenham.—34 to 44 (even), Culvert-rd., w.r. 127*l.* 8s.; also 1, 3, and 5, Braemar-rd. (S.), y.r. 96*l.*, f. 2,400

By B. BAILEY & Co. (at Ilford).

Ilford, Essex.—Thorold-rd., &c, 96 plots of freehold building land 4,938

March 31.—By BEARD & SON.

Bayswater.—45, 47, and 49, Chepstow-place, u.t. 40 yrs., g.r. 30*l.*, y.r. 208*l.* 2,250

Kensington.—19, Campden-gv., u.t. 40 yrs., g.r. 7*l.*, e.r. 75*l.* 820

9, Maxilla-gdns., u.t. 72 yrs., g.r. 10*l.*, y.r. 60*l.*. 560

Battersea.—114, Meyrick-rd. (S.), u.t. 37 yrs., g.r. 4*l.*, y.r. 30*l.* 215

Ealing.—2, Melbourne-av., u.t. 98 yrs., g.r. 7*l.* 7s., e.r. 45*l.* 403

East Ham.—High-st. North, f.g.r. 10*l.* 10s., reversion in 96 yrs. 275

By ALLAN BOOTH.

Holloway.—2, Middleton-rd.. u.t. 44 yrs., g.r. 2*l.*, e.r. 55*l.* 600

By BROWETT & TAYLOR.

Battersea.—79, Wakehurst-rd., u.t. 74 yrs., g.r. 6*l.*, y.r. 32*l.* 325

Clapham.—65, Studley-rd., y.r. 42*l.*; also i.g.r. 3*l.*, u.t. 34½ yrs., g.r. 5*l.* 13s. 4d. 390

Battersea.—5, Goulden-st., u.t. 74 yrs., g.r. 5*l.*, w.r. 33*l.* 16s. 222

Ealing.—Northfield-ln., f.g.r. 10*l.*, reversion in 197 yrs. 265

Hessel-rd., f.g. rents 26*l.*, reversion in 99 yrs... 660

By C. H. BROWN.

Pimlico.—16, Sutherland-st., u.t. 31 yrs., g.r. 8*l.*, w.r. 89*l.* 14s. 475

79, Winchester-st., u.t. 26 yrs., g.r. 9*l.*, w.r. 85*l.* 16s. 480

Balham.—52, Cheriton-sq., u.t. 99 yrs., g.r. 7*l.*, e.r. 42*l.* 410

Thornton Heath.—Penrith-rd., Belmont, u.t. 95½ yrs., g.r. 5*l.*, w.r. 28*l.* 12s. 230

By MONTAGU HOLMES & SONS.

Croydon.—Bredon-rd., f.g. rents 21o*l.*, reversion in 98 yrs. 4,830

Ealing.—Egerton-gdns., f.g. rents 16*l.* 8s., reversion in 92 yrs. 420

The Av., f.g.r. 10*l.* 10s., reversion in 92 yrs.... 275

Montagu-rd., f.g. rents 42*l.*, reversion in 92 yrs. 1,070

Walthamstow.—Chelmsford-rd., f.g. rents 22*l.*, reversion in 93 yrs. 495

By HUNTER & HUNTER.

Kentish Town.—Peckwater-st., i.g. rents 10*l.*, u.t. 46 yrs., g.r. 10s. £165

Kensington.—33, Stratford-rd., u.t. 53 yrs., g.r. 8*l.*, y.r. 54*l.* 530

By ROBINS, GORE, & MERCER.

Brondesbury.—34, Kelson-st. (S), u.t. 76¾ yrs., g.r. 8*l.*, w.r. 54*l.* 12s. 335

By RUTLEY, SON, & VINE.

Hampstead-rd.—24, Ampthill-sq., u.t. 40 yrs., g.r. 10*l.* 10s., y.r. 65*l.* 720

Kentish Town.—65, Bartholomew-rd., u.t. 55½ yrs., g.r. 10*l.*, p. 580

Marylebone.—67, Earl-st., u.t. 12 yrs., g.r. 6*l.* 6s., y.r. 52*l.* 165

By WATERER & DICKINS.

Bromley, Kent.—Park-av., a plot of building land, f. 200

By E. H. HENRY (at Clapham).

Clapham.—Klea-av., 17 plots of freehold building land 2,997

By G. TINKER & SON (at Huddersfield).

Bradley, Yorks.—Bradley-rd., f.g.r.'s 24*l.* 14s. 8d., reversions in from 45 to 49 yrs. (with option of renewal and payment of fine) 700

Bradley-rd., f.g.r.'s 13*l.* 14s., reversion in 966 yrs. 366

Leeds North-rd., Cooper Bridge Villa, f., y.r. 20*l.* 450

Bradley-rd., a plot of building land, area 655 yards, f. 166

Bradley-rd., The White Cross Inn, area 2 a. 2 r. 11 p., f., y.r. 57*l.* 2,025

Upper Quarry-rd., a close of land, 1 a. 1 r. 25 p., f. 150

Lamb Cote Farm, 74 a. 2 r. 17 p., f. 1,600

High Park Farm, 38 a. 1 r. 17 p., f. 1,000

Grange Farm, 50 a. 3 r. 3 p., f. 2,300

Bradley Hall Farm, 100 a. 2 r. 28 p., f. 2,775

By J. HAXELL (at Masons' Hall Tavern).

Walworth.—York-st., the Lock Tavern" b.-h., u.t. 24¾ yrs., y.r. 50*l.*, with goodwill 2,910

April 1.—By DRYSDALE, NURSE, & Co.

Stoke Newington.—75, Lordship-rd., u.t. 45 yrs., g.r. 9*l.* 15s., e.r. 95*l.* 900

By FOSTER & CRANFIELD.

Pimlico.—79, Alderney-st., u.t. 29 yrs., g.r. 9*l.*, y.r. 55*l.* 380

Kilburn.—31, 35, 37, and 39, Princess-rd., u.t. 59 yrs., g.r. 80*l.*, y.r. 230*l.* 12s. 500

55, Princess-rd., u.t. 59 yrs., g.r. 8*l.* 10s., e.r. 40*l.* 335

By LOWE & GOLDSCHMIDT.

Regent's Park.—24, Avenue-rd., u.t. 16½ yrs., g.r. nil, e.r. 130*l.* 1,025

By THURGOOD & MARTIN.

Smithfield.—23 and 24, Whitehorse-alley, f., w.r. 35*l.* 2s. 385

Fleet-street.—6, Wine Office-court, area 600 ft., f., y.r. 50*l.* 1,275

9, Wine Office-court, area 1,250 ft., f., y.r. 100*l.* 2,800

By DOUGLAS YOUNG & Co.

Wandsworth.—17, Ringford-rd., f., y.r. 30*l.* 490

7 and 9, Ringford-rd., u.t. 77 yrs, g.r. 13*l.*, y.r. 62*l.* 645

33, Annerland-rd., f., y.r, 34*l.* 500

Battersea.—30, Simpson-st., u t. 53 yrs., g.r. 5*l.* 10s., y.r. 31*l.* 4s. 220

43, 45, and 47, Brymaer-rd., u.t. 67½ yrs., g.r. 18*l.*, y.r. 99*l.* 1,085

Clapham.—10, Richmond-ter., u.t. 25½ yrs., g.r. 8*l.* 10s., e.r. 52*l.* 370

By FAREBROTHER, ELLIS, & Co. (at Hereford.)

Bishops Frome, Hereford.—Instone Court Farm, 203 a. 3 r. 4 p., f., y.r. 180*l.* 3,300

Avenbury, Hereford.—Lower Venn Farm, 176 a. 0 r. 38 p., f., y.r. 122*l.* 12s. 2,200

Stocks Farm, 85 a. 3 r. 30 p., f., y.r. 80*l.* 1,500

Freehold cottage and enclosures, 45 a. 1 r. 38 p., y.r. 35*l.* 13s. 700

April 2.—By BRIANT & SON.

Kennington.—25, Warham-st., f., y.r. 30*l.* 750

Paddington.—30, Westbourne-ter. North, u.t. 47 yrs., g.r. 10*l.* 10s., y.r. 52*l.* 400

Forest Gate.—Forest-st., f.g.r.'s 48*l.*, reversion in 51½ yrs. 1,175

Limehouse.—Thomas-st., i.g. rents, 42*l.*, u.t. 59½ yrs., g.r. 21*l.* 390

By COLE & HICKS.

Ealing.—87, The Av., f., e.r. 65*l.* 1,125

By C. C. & T. MOORE.

Whitechapel.—6 and 8, Well-st. (S), f., y.r. 156*l.*. 1,550

Bow.—17 and 19, Chiltern-rd., u.t. 60 yrs., g.r. 7*l.*, w.r. 67*l.* 12s. 600

Forest Gate.—100, 102, 104, and 106, Ramsey-rd., f., w.r. 114*l.* 8s. 1,150

Hackney.—37, Queen Ann-road, u.t. 42 yrs., g.r. 5*l.*, y.r. 40*l.* 300

By NEWBON, EDWARDS, & SHEPHARD.

Paddington.—6 and 7, Amberley Mews, u.t. 59 yrs., g.r. 5*l.*, y.r. 48*l.* 395

Islington.—104, 106, and 108, Church-rd., u.t. 35 yrs., g.r. 15*l.*, y.r. 135*l.* 1,240

Spitalfields.—261 to 269 (odd), Brick-la. (S.), u.t. 50 yrs., g.r. 75*l.*, w.r. 252*l.* 4s. 800

Willesden.—Villiers-rd., f.g.r.'s 34*l.* 10s., reversion in 85 yrs. 830

Regent's Park.—26, Regent's Park-rd., u.t. 41 yrs., g.r. 12*l.*, e.r. 70*l.* 675

Crouch Hill.—66 and 68, Sparsholt-rd., u t. 43 yrs., g.r. 12*l.*, y.r. 76*l.* 660

Victoria Park.—25, Cadogan-ter., u.t. 50¾ yrs., g.r. 5*l.* 10s., e.r. 34*l.* 320

Kingsland.—351 to 357 (odd), Kingsland-rd., u.t. 16½ yrs., g.r. 16*l.*, y.r. 144*l.* 700

De Beauvoir Town.—17, Buckingham-rd., u.t. 14 grs., g.r. 4*l.* 10s., e.r. 42*l.* 230

Holloway.—18, Devonshire-rd., u.t. 49½ yrs., g.r. 6*l.* 6s., e.r. 34*l.* 355

74, Barnsbury-rd., u.t. 14½ yrs.. g.r. 5*l.*, y.r. 42*l.* 175

By NOTT, CARTWRIGHT, & ETCHES.

Pimlico.—297, Vauxhall Bridge-rd., u.t. 21¼ yrs., g.r. 10*l.*, y.r. 68*l.* 580

33, Churton-st. (S), y.r. 85*l.*; also i.g.r. 5*l.*, u.t. 34½ yrs., g.r. 3*l.* 1,010

8, Moreton-ter.-mews, u.t. 30½ yrs., g.r. 4*l.*, y.r. 20*l.* 160

By STIMSON & SONS.

Lambeth.—1, 2, and 5, Pearman-st., u.t. 56 yrs., g.r. 30*l.*, w.r. 198*l.* 18s. 1,435

Blackfriars.—2 to 10 (even), Friar-st.; 2 and 4, Lancaster-st.; and 9, Friar-pl. (S), u t. 70 yrs., g.r. 36*l.*, y.r. 279*l.* £1,650

Walworth.—85, Beckway-st., f., w.r. 135*l.* 17s. .. 690

Brixton.—7 and 8, Western-rd., u.t. 19½ yrs., g.r. 10*l.*, y.r. 76*l.* 320

Crouch End.—31 and 33, Barrington-rd., u.t. 86 yrs., g.r. 12*l.* 12s., y.r. 70*l.* 705

Forest Gate.—122, Whyteville-rd., f., w.r. 33*l.* 16s. 290

Kentish Town.—9 and 27, Gratton-rd., u.t. 37½ yrs., g.r. 10*l.* 10s., y.r. 75*l.* 750

Camberwell.—158 to 164 (even), Southampton-st. (S.), also The Royal Oak b.-h., u.t. 15 yrs., g.r. 115*l.*, y.r. 169*l.* 270

2, Rignold-rd., u.t. 63¾ yrs., g r. 5*l.*, w.r. 35*l.* 2s. 240

By TYSER, GREENWOOD, & CRIER.

Gunnersbury.—Harvard-rd., Sans Souci, u t. 68 yrs., g.r. 20*l.*, e.r. 120*l.* 1,400

By WEBB & NEILSON.

Chiswick.—12, Woodstock-rd., u t. 7.¾ yrs., g.r. 12*l.*, y.r. 60*l.* 640

Tooting.—40 and 42, Hendham-rd., f., y.r. 96*l.* .. 1,595

Hendham-rd., f.g.r.'s 18*l.* 15s., reversion in 80 yrs. 470

By WYATT & SON (at Chichester).

Chichester, Sussex.—West-st., The Royal Oak p.h., f., p. 330

West-st., The Eagle p.h., u.t. 1,677 yrs., g.r. 8d., p. 630

Tower-st., freehold Stabling, y.r. 15*l.* 225

Southgate, The Railway Inn, f., p. 670

Orchard-ter., The White Hart p.-h., f., p. 200

By WORSFOLD & HAYWARD (at Dover).

Dover, Kent.—28 and 30, St. James-st., f., p. 370

20, St. James-st., with stabling and stores in rear, f., p. 303

April 3.—By CHARLES CANEY.

Camberwell.—72, Coldharbour-la. (S), f., e.r. 55*l.* 820

11, Windsor-rd., u.t. 51 yrs., g.r. 10*l.*, e.r. 65*l.*.. 520

By SIM & RANDALL.

Ilford, Essex.—47 to 61 (odd), Westwood-rd., f., w.r. 208*l.* 1,560

33, 35, and 37, Westwood-rd., f., w.r. 84*l.* 10s... 830

Bow.—38, Coborn-rd., u.t. 13 yrs., g.r. 1*l.* 10s., w.r. 46*l.* 16s. 130

By S. WALKER & SON.

Dalston.—10 and 11, Albion-ter., u.t. 36 yrs., g.r. 7*l.* 2s. 6d., y.r. 60*l.* 545

40 and 42, Albion-rd., u.t. 40 yrs., g.r. 12*l.* 12s., y.r. 72*l.* 675

Contractions used in these lists.—F.g.r. for freehold ground-rent; l.g.r. for leasehold ground-rent; i.g.r. for improved ground-rent; g.r. for ground-rent; r. for rent; f. for freehold; c. for copyhold; l. for leasehold; p. for possession; e.r. for estimated rental; w.r. for weekly rental; q.r. for quarterly rental; y.r. for yearly rental; u.t. for unexpired term; p.a. for per annum; yrs. for years; la. for lane; st. for street; rd. for road; sq. for square; pl. for place; ter. for terrace; cres. for crescent; av. for avenue; gdns. for gardens; yd. for yard; gr. for grove; b.h. for beer-house; p.h. for public-house; o. for offices; s. for shops.

PRICES CURRENT OF MATERIALS.

*** Our aim in this list is to give, as far as possible, the *average* prices of materials, not necessarily the lowest. Quality and quantity obviously affect prices—a fact which should be remembered by those who make use of this information.

BRICKS, &c.

	£ s. d.		
Hard Stocks	1 14 0	per 1,000 alongside, in river.	
Rough Stocks and Grizzles.....	1 11 0	,,	,, ,,
Facing Stocks....	2 12 0	,,	,, ,,
Shippers	2 5 0	,,	,, ,,
Flettons	1 7 6	,,	at railway depôt
Red Wire Cuts ..	1 12 0	,,	,, ,,
Best Fareham Red	3 12 0	,,	,, ,,
Best Red Pressed Ruabon Facing	5 0 0	,,	,, ,,
Best Blue Pressed Staffordshire ..	4 5 0	,,	,, ,,
Do. Bullnose	4 11 0	,,	,, ,,
Best Stourbridge Fire Bricks	4 8 0	,,	,, ,,
GLAZED BRICKS.			
Best White and Ivory Glazed Stretchers.....	13 0 0	,,	,, ,,
Headers	12 0 0	,,	,, ,,
Quoins, Bullnose, and Flats.....	17 0 0	,,	,, ,,
Double Stretchers	19 0 0	,,	,, ,,
Double Headers..	16 0 0	,,	,, ,,
One Side and two Ends.....	19 0 0	,,	,, ,,
Two Sides and one End	20 0 0	,,	,, ,,
Splays, Chamfered, Squints.....	20 0 0	,,	,, ,,
Best Dipped Salt Glazed Stretchers and Headers	12 0 0	,,	,, ,,
Quoins, Bullnose, and Flats.....	14 0 0	,,	,, ,,
Double Stretchers	15 0 0	,,	,, ,,
Double Headers..	14 0 0	,,	,, ,,
One Side and two Ends.....	15 0 0	,,	,, ,,
Two Sides and one End	15 0 0	,,	,, ,,
Splays Chamfered, Squints.....	14 0 0	,,	,, ,,
Second Quality White and Dipped Salt Glazed	2 0 0	,,	less than best.
Thames and Pit Sand	7 0	per yard, delivered.	
Thames Ballast	6 0	,,	,,
Best Portland Cement	30 0	per ton, delivered.	
Best Ground Blue Lias Lime..	21 0	,,	,,

NOTE.—The cement or lime is exclusive of the ordinary charge for sacks.

Grey Stone Lime	10s. 6d. per yard, delivered.
Stourbridge Fire-clay in sacks	27s. 6d. per ton at rly. dpt.

[*See also page 403.*

COMPETITIONS, CONTRACTS AND PUBLIC APPOINTMENTS.

(For some Contracts, &c., still open, but not included in this List, see previous issues.)

COMPETITION.

Nature of Work.	By whom Required.	Premiums.	Designs to be delivered
*Public Baths	Gillingham (Kent) U.D.C.	20*l.*, 10*l.*, and 5*l.*	May 30

CONTRACTS.

Nature of Work or Materials.	By whom Advertised.	Forms of Tender, &c., supplied by	Tenders to be delivered
*Isolation Hospital at Thistle Hill, Knaresborough	Harrogate & Knaresboro' Hos. Brd.	G. H. Stranger, F.R.I.B.A., Queen's Chambers, Wolverhampton	April 13
Cottages, Carr Bridge, N.B.	.....	The Clerk, Parish Council Offices, Duthil, Carr Bridge	April 14
Street Works, Avenue-road and Manor-road, Woolston	Itchen (Hants) U.D.C.	T. A. Collingwood, Surveyor, Council Offices, Woolston	do.
Sewerage Works, &c.	Maesteg (Wales) U.D.C.	J. Humphreys, Civil Engineer, Town Hall Chambers, Maesteg	do.
Road Works, Lord-street	Mansfield Corporation	R. F. Vallance, Surveyor, White Hart Chambers, Mansfield	do.
Road Works, Bishop-street	do.	do.	do.
Brickwork, Brede Pumping Station	Hastings Corporation	P. H. Palmer, Civil Engineer, Town Hall, Hastings	do.
Road Metal, Bethersden	West Ashford R.D.C.	A. Sims, Surveyor, Charing, Kent	do.
Public Offices and Fire Station	Aldershot U.D.C.	C. E. Hutchinson, Architect, 11, John-street, W.C.	do.
Club Premises, Napier-street	Hazel Grove Reform Club	Mr. Hallam, Hazel Grove, near Stockport	April 15
Sorting Office, Hunslet, Leeds	Office of Works	The Secretary, Storey's Gate, S.W.	do.
Post Office, Burnley	do.	do.	do.
Twenty-five Houses, Hart-road, Hartlepool	N. E. Railway Co.	Wm. Bell, Architect, York	do.
Reservoir, &c.	Templemore (Ireland) U.D.C.	Moynan & Gill, Engineers, Nenagh	do.
Cottages, Blackley Estate	Manchester Corporation	City Architect, Town Hall, Manchester	do.
Church Restoration, Winterton, Lincs	.....	C. H. Fowler, Architect, The College, Durham	do.
School Chapel, Lorne Park-road, Kirkley, Lowestoft	.....	E. E. Smith, Architect, 145, Victoria-road North, Southsea	April 16
Business Premises, Bargoed, Wales	.....	D. S. Jones, Bargoed	do.
Store Buildings, Ferry Hill	Bishop Auckland Co-op. Soc., Ltd.	F. H. Livesay, Architect, Bishop Auckland	do.
Private Street Works, Woolston	Itchen (Hants) U.D.C.	T. A. Collingwood, Surveyor, Council Offices, Woolston	do.
Destructor Furnaces, Boiler, &c., Factory-lane	Croydon Town Council	Borough Engineer, Town Hall, Croydon	April 17
Stone Base for Bandstand, Avenham Park	Preston (Lancs) Corporation	Borough Surveyor, Town Hall, Preston	do.
Road Works, off Poulton-street, Ashton	do.	do.	do.
Paper Mill, Burneside, near Kendal	Messrs. J. Cropper & Co., Ltd.	J. Hutton, Architect, Kendal	do.
Presbyterian Church, Convoy, Co. Donegal	.....	J. M'Intyre, Architect, Letterkenny	do.
Road Works, Diamond-terrace, &c., Spennymoor	.....	C. R. Spencer, Surveyor, Silver-street, Spennymoor	April 18
Refuse Destructor, &c., St. Paul's-road	Preston Corporation	Borough Surveyor, Town Hall, Preston	do.
Presbyterian Church, Roseyards, Co. Antrim	.....	S. J. M'Fadden, Civil Engineer, Queen-street, Coleraine	do.
Sewerage Works, &c.	Chirk (N. Wales) R.D.C.	Bremner & Co., Engineers, Oswestry	do.
Additions to Pioneer Works, Parkinson-lane, Halifax	Messrs. C. Redman & Sons	M. Hall, Architect, 1, Harrison-road, Halifax	do.
Road Materials	Southborough U.D.C.	P. Hanmer, Council Offices, Southborough, Kent	do.
Church and School, Pontypool	.....	Swash & Bain, Architects, Newport, Mon.	April 20
Engine House, &c. at Waterworks, Ogbourne	Swindon Corporation	Borough Surveyor, Town Hall, Swindon	do.
Workhouse Infirmary	Tamworth Guardians	J. W. Godderidge, Architect, 4, Bolebridge-street, Tamworth	do.
Sewerage Works, &c.	Newhaven (Sussex) U.D.C.	F. J. Rayner, Civil Engineer, Newhaven, Sussex	do.
*Chapel of Rest for the Dead at Avondale Park	Royal Borough of Kensington	Town Hall, Kensington	do.
*Underground Conveniences, Offord-road	Islington Borough Council	Council's Engineer, Town Hall, Upper-street, N.	do.
*Side Entrances, &c., to Sewers & Wood Paving Works	Hornsey U.D.C.	Council's Engineer, Southwood-lane, Highgate, N.	do.
*Sewering and Roadmaking Works	do.	do.	April 21
*Making-up Roads	Tottenham U.D.C.	Council's Engineer, 712, High-road, Tottenham	do.
*Water Supply, &c., Works	Daventry Borough Council	Council's Surveyor, The Moot Hall, Daventry	do.
*Making-up Roads	Acton District Council	Council's Surveyor, 242, High-street, Acton	do.
Sewerage Works, &c.	Colwyn (North Wales) U.D.C.	Prichard Green, & Co., Engineers, 37, Waterloo-street, Birmingham	do.
*New Sorting Office, Manor Park, E.	Commissioners of H.M. Works	H.M. Office of Works, Storey's Gate, S.W.	do.
*Postman's Sorting Office, Walham Green	do.	do.	do.
*New Sorting Office, Kentish Town, N.W.	do.	do.	April 22
Electric Lighting Plant	Bridlington Corporation	Medhurst & Co., Engineers, 14, St. Anne's-square, Manchester	do.
Pipe Sewers (two miles)	Tarporley U.D.C.	B. Latham, Civil Engineer, Parliament Mansions, Victoria-st., S.W.	do.
*Fire Hydrants, Main and Pump at Northern Hospital	Metropolitan Asylums Board	Office of Board, Embankment, E.C.	do.
*Wood Block Flooring, &c.	Cannock Union	Willcox & Raikes, 63, Temple-row, Birmingham	do.
*Ironwork for Ornamental Gates, &c.	Bradford Corporation	Town Clerk's Office, Bradford	April 23
*Timber	Director-General Ordnance Survey	Officer in Charge of Stores, Ordnance Survey Office, Southampton	do.
*Erection of Fire Station	Eastbourne Corporation	P. A. Robson, Architect, 9, Bridge-street Westminster	April 25
*Road Making and Paving Works	Walthamstow U.D.C.	Council's Engineer, Town Hall, Walthamstow	April 27
*Cast Iron Tank, &c., at Canning Town	County Borough of West Ham	Borough Engineer, Town Hall, Stratford, E.	April 28
*Excavators and Bricklayers' Work (Foundations)	Manchester Corporation	City Treasurer, Town Hall, Manchester	April 29
*New Buildings to be attached to Infirmary	Holbeach Union	Union Workhouse, Holbeach	do.
Approach Road to Marine Drive	Scarborough Town Council	Beard & Smith, Engineers, Town Hall, Scarborough	April 30
Asylum Buildings, Exminster	Devon County Asylum Committee	E. H. Harbottle, Architect, County Chambers, Exeter	May 1
*Technical Institute and Free Library	Portsmouth Corporation	G. E. Smith, Architect, 145, Victoria-road North, Southsea	May 5
*External Painting Cobbold-road School, &c.	Wanstead School Board	J. T. Bressey, 70 and 71, Bishopsgate-street Within, E.C.	May 11
*Proposed Municipal Offices	Crewe Corporation	Borough Surveyor, Municipal Offices, Crewe	No date.
Two Villas, Brynmawr-place, Maesteg	.....	W. B. Rees, Architect, 37, St. Mary-street, Cardiff	do.
Additions to Reading Rooms, Billericay, Essex	.....	J. W. Waylett, High-street, Billericay	do.
Villas, Lenton Sands, Nottingham	.....	F. H. Collyer, Architect, 8, Bridlesmith Gate, Nottingham	do.
School, Milton, N.B.	Old Kilpatrick School Board	Smellie & Co., 167, St. Vincent-street, Glasgow	do.

PUBLIC APPOINTMENTS.

Nature of Appointment.	By whom Advertised.	Salary.	Application to be in
*Clerk of Works	York Asylum Committee	Not stated	April 16
*Clerk of Works	Swindon Corporation	3*l.* 3s. per week	April 20
*Architectural Assistants	London County Council	1*l.* 1s. to 3*l.* 7s. 6d. per week	April 21
*Borough Engineer and Surveyor, &c.	Wokingham Borough Council	150*l.*	do.
*Architects	Manchester Royal Infirmary Board	Not stated	May 1

Those marked with an asterisk (*) are advertised in this Number. *Competitions* iv. *Contracts*, iv. vi. viii. *and* x. *Public Appointments*, xvi.

PRICES CURRENT (*Continued*).

STONE.

	s. d.	
Ancaster in blocks	1 11	per ft. cube, deld. rly. depôt.
Bath ,, ...	1 7	,, ,,
Farleigh Down Bath ..	1 8	,, ,,
Beer in blocks	1 6	,, ,,
Grinshill ,, ...	1 10	,, ,,
Brown Portland in blocks	2 2	,, ,,
Darley Dale in blocks..	2 4	,, ,,
Red Corsehill ,,	2 5	,, ,,
Closeburn Red Freestone	2 0	,, ,,
Red Mansfield ,,	2 4	,, ,,
YORK STONE—*Robin Hood Quality.*	s. d.	
Scappled random blocks	2 10	per ft. cube, deld. rly. depôt.
6 in. sawn two sides landings to sizes (under 40 ft. super.)	2 3	per foot super. ,,
6 in. Rubbed two sides Ditto, Ditto	2 6	,, ,,
3 in. Sawn two sides slabs (random sizes)..	0 11½	,, ,,
2 in. to 2½ in. Sawn one side slabs (random sizes)	0 7¼	,, ,,
1½ in. to 2 in. ditto, ditto	0 6	,,
BEST HARL YORK—		
Scappled random blocks	3 0	per ft. cube ,,
6 in. sawn two sides, landings to sizes (under 40 ft. sup.)	2 8	per ft. super. ,,
6 in. Rubbed two sides Ditto	—	,, ,,
3 in. sawn two sides slabs (random sizes)	1 2	,, ,,
2 in. self-faced random flags.....	0 5	,, ,,
Hopton Wood (Hard Bed) in blocks	2 3	per ft. cube.
,, ,, 6 in. sawn both sides landings	2 7	deld. rly. depôt. per ft. super. deld. rly. depôt.
,, ,, 3 in. do.	1 2½	,, ,,

SLATES.

in. in.	£ s. d.	
20×10 best blue Bangor..	13 2 6	per 1000 of 1200 at ry.dep.
20×12 ,, ,, ,, ..	13 17 6	,, ,,
20×10 best seconds ,,	12 15 0	,, ,,
20×12 ,, ,, ,,	13 10 0	,, ,,
16×8 best ,,	7 0 0	,, ,,
20×10 best blue Portmadoc ..	12 5 0	,, ,,
16×8 best blue Portmadoc	6 5 0	,, ,,
20×10 best Eureka unfading green....	15 2 6	,, ,,
20×12 ,, ,,	17 2 6	,, ,,
18×10 ,, ,,	12 10 0	,, ,,
16×8 ,, ,,	10 5 0	,, ,,
20×10 permanent green	11 0 0	,, ,,
18×10 ,, ,,	9 5 0	,, ,,
16×8 ,, ,,	6 10 0	,, ,,

TILES.

	s. d.	
Best plain red roofing tiles..	42 0	per 1,000, at rly. depôt.
Hip and valley tiles....	3 7	per doz. ,, ,,
Best Broseley tiles	50 0	per 1,000 ,, ,,
Do. Ornamental Tiles 52	6	,, ,, ,,
Hip and valley tiles....	4 0	per doz. ,, ,,
Best Ruabon Red, brown or brindled Do. (Edwards)	57 6	per 1,000 ,, ,,
Do. ornamental Do. 60	0	,, ,, ,,
Hip tiles	4 0	per doz. ,, ,,
Valley tiles.....	3 0	,, ,,
Best Red or Mottled Staffordshire Do. (Peakes)	51 9	per 1,000 ,, ,,
Do. Ornamental Do. 54	6	,, ,, ,,
Hip tiles	4 1	per doz. ,, ,,
Valley tiles.....	3 8	,, ,, ,,
Best "Rosemary" brand plain tiles	48 0	per 1,000 ,, ,,
Do. Ornamental Do. 50	0	,, ,, ,,
Hip tiles	4 0	per doz. ,, ,,
Valley tiles	3 8	,, ,, ,,

WOOD.

	At per standard. £ s. d.	£ s. d.	
Deals: best 3 in. by 11 in. and 4 in. by 9 in. and 11 in.....	15 10 0	16 10 0	
Deals: best 3 by 9.....	14 10 0	15 10 0	
Battens: best 2½ in. by 7 in. and 8 in., and 3 in. by 7 in. and 8 in.....	11 10 0	12 10 0	
Battens: best 2½ by 6 and 3 by 6 ..	0 10 0	less than 7 in. and 8 in.	
Deals: seconds	1 0	0 less than best	
Battens: seconds	0 10 0	,, ,, ,,	
2 in. by 4 in. and 2 in. by 6 in. ..	9 0 0	9 10 0	
2 in. by 4½ in. and 2 in. by 5 in. ..	8 10 0	9 10 0	
Foreign Sawn Boards—			
1 in. and 1¼ in. by 7 in.	0 10	0 more than battens.	
¾ in.	1 0 0	,,	
Fir timber: Best middling Danzig or Memel (average specification	At per load of 50 ft. 4 10 0	5 0 0	
Seconds	4 5 0	4 10 0	
Small timber (8 in. to 10 in.)	3 12 6	3 15 0	
Small timber (6 in. to 8 in.).....	3 0 0	3 10 0	
Swedish balks	2 15 0	3 0 0	
Pitch-pine timber (30 ft. average)..	3 5 0	3 15 0	
JOINERS WOOD.	At per standard.		
White Sea: First yellow deals, 3 in. by 11 in.....	23 0 0	24 0 0	
3 in. by 9 in.	21 0 0	22 10 0	
Battens, 2½ in. and 3 in. by 7 in.	17 0 0	18 10 0	
Second yellow deals, 3 in. by 11 in.	18 10 0	20 0 0	
,, ,, 3 in. by 9 in.	17 10 0	19 0 0	
Battens, 2½ in. and 3 in. by 7 in.	13 10 0	14 10 0	
Third yellow deals, 3 in. by 11 in. and 9 in.	15 10 0	16 10 0	
Battens, 2½ in. and 3 in. by 7 in.	11 10 0	12 10 0	
Petersburg: first yellow deals, 3 in. by 11 in.	21 0 0	22 10 0	
Do. 3 in. by 9 in.....	18 0 0	19 10 0	
Battens.....	13 10 0	15 0 0	
Second yellow deals, 3 in. by 11 in.....	16 0 0	17 0 0	
Do. 3 in. by 9 in.	14 10 0	16 0 0	
Battens.....	11 10 0	12 10 0	
Third yellow deals, 3 in. by 11 in.....	13 10 0	14 0 0	
Do. 3 in. by 9 in.	13 0 0	14 0 0	
Battens	10 0 0	11 0 0	

PRICES CURRENT (*Continued*).

WOOD.

	At per standard. £ s. d.	£ s. d.	
White Sea and Petersburg:—			
First white deals, 3 in. by 11 in.	14 10 0	15 10 0	
,, ,, 3 in. by 9 in.	13 10 0	14 10 0	
Battens.....	11 0 0	12 0 0	
Second white deals 3 in. by 11 in.	13 10 0	14 10 0	
,, ,, ,, 3 in. by 9 in.	12 10 0	13 10 0	
,, ,, ,, battens.....	9 10 0	10 10 0	
Pitch-pine: deals	16 0 0	18 0 0	
Under 2 in. thick extra	0 10 0	1 0 0	
Yellow Pine—First, regular sizes ..	33 0 0	upwards.	
Oddments	22 0 0	24 0 0	
Seconds, regular sizes	24 10 0	26 10 0	
Yellow Pine Oddments	20 0 0	22 0 0	
Kauri Pine—Planks, per ft. cube..	0 3 6	0 4 6	
Danzig and Stettin Oak Logs—			
Large, per ft. cube	0 2 6	0 3 6	
Small ,, ,, ...	0 2 3	0 2 6	
Wainscot Oak Logs, per ft. cube ..	0 5 0	0 5 6	
Dry Wainscot Oak, per ft. sup. as inch	0 0 7	0 0 8	
¾ in. do. do.	0 0 6½	- - -	
Dry Mahogany—			
Honduras, Tabasco, per ft. sup. as inch	0 0 9	0 0 11	
Selected, Figury, per ft. sup. as inch	0 1 6	0 2 0	
Dry Walnut, American, per ft. sup. as inch	0 0 10	0 1 0	
Teak, per load	16 10 0	20 0 0	
American Whitewood Planks—			
Per ft. cube	0 4 0	- - -	
Prepared Flooring—	Per square.		
1 in. by 7 in. yellow, planed and shot.....	0 13 6	0 17 6	
1 in. by 7 in. yellow, planed and matched.....	0 14 0	0 18 0	
1¼ in. by 7 in. yellow, planed and matched.....	0 16 0	1 1 6	
1 in. by 7 in. white, planed and shot.....	0 11 6	0 13 6	
1 in. by 7 in. white, planed and matched.....	0 12 0	0 14 0	
1¼ in. by 7 in. white, planed and matched.....	0 14 6	0 16 6	
¾ in. by 7 inch yellow matched and beaded or V-jointed boards	0 11 0	0 13 6	
1 in. by 7 in. do. do. do.	0 14 0	0 18 0	
¾ in. by 7 in. white do. do.	0 10 0	0 11 6	
1 in. by 7 in. do. do. do.	0 11 6	0 13 6	
6-in. at 6d. to 9d. per square less than 7-in.			

JOISTS, GIRDERS, &c.

	In London, or delivered Railway Vans, per ton. £ s. d.	£ s. d.
Rolled Steel Joists, ordinary sections	6 5 0	7 5 0
Compound Girders ,, ,,	8 2 6	9 5 0
Angles, Tees and Channels, ordinary sections	7 17 6	8 17 6
Flitch Plates	8 5 0	8 15 0
Cast Iron Columns and Stanchions, including ordinary patterns	7 2 6	8 5 6

METALS.

	Per ton, in London £ s. d.	£ s. d.
IRON—		
Common Bars.....	7 15 0	8 5 0
Staffordshire Crown Bars, good merchant quality	8 5 0	8 15 0
Staffordshire "Marked Bars" ..	10 10 0	- - -
Mild Steel Bars	9 0 0	9 10 0
Hoop Iron, basis price.....	9 5 0	9 10 0
,, ,, galvanised.....	16 0 0	. . .
(* And upwards, according to size and gauge.)		
Sheet Iron, Black.—		
Ordinary sizes to 20 g.	10 0 0	- - -
,, ,, to 24 g.	11 0 0	- - -
,, ,, to 26 g.	12 10 0	- - -
Sheet Iron, Galvanised, flat, ordinary quality—		
Ordinary sizes, 6 ft. by 2 ft. to 3 ft. to 20 g.....	12 15 0	- - -
,, ,, 22 g. and 24 g.	13 5 0	- - -
,, ,, 26 g.....	14 5 0	- - -
Sheet Iron, Galvanised, flat, best quality:—		
Ordinary sizes to 20 g.....	16 0 0	- - -
,, ,, 22 g. and 24 g.	16 10 0	- - -
,, ,, 26 g.....	18 0 0	- - -
Galvanised Corrugated Sheets :—		
Ordinary sizes, 6 ft. to 8 ft. 20 g.	12 15 0	- - -
,, ,, 22 g. and 24 g.	13 5 0	- - -
,, ,, 26 g.....	14 5 0	- - -
Best Soft Steel Sheets, 6 ft. by 2 ft. to 3 ft. by 20 g. and thicker ..	12 0 0	- - -
,, ,, 22 g. and 24 g.	13 0 0	- - -
,, ,, 26 g.	14 5 0	- - -
Cut nails, 3 in. to 6 in.	9 5 0	9 15 0
(Under 3 in. usual trade extras.)		

LEAD, &c.

	Per ton, in London. £ s. d.	£ s. d.
LEAD—Sheet, English, 3 lbs. & up.	15 5 0	- - -
Pipe in coils	15 15 0	- - -
Soil pipe	18 5 0	- - -
Compo Pipe	18 5 0	- - -
ZINC—Sheet—		
Vieille Montagne ..... ton	28 5 0	- - -
Silesian	28 0 0	- - -
COPPER—		
Strong Sheet ..... per lb.	0 0 10½	- -
Thin ..... ,,	0 0 11½	- -
Copper nails ..... ,,	0 0 11½	- -
BRASS—		
Strong Sheet..... ,,	0 0 10	- - -
Thin ,, ... ,,	0 0 11	- - -
TIN—English Ingots ..... ,,	0 1 5	- - -
SOLDER—Plumbers' ..... ,,	0 0 6½	- - -
Tinmen's ..... ,,	0 0 8½	- - -
Blowpipe ..... ,,	0 0 9½	- - -

PRICES CURRENT (*Continued*).

ENGLISH SHEET GLASS IN CRATES.

15 oz. thirds	2½d.	per ft. delivered.
,, fourths.....	1½d.	,, ,,
21 oz. thirds	3½d.	,, ,,
,, fourths.....	2½d.	,, ,,
26 oz. thirds	4d.	,, ,,
,, fourths.....	3½d.	,, ,,
32 oz. thirds	5d.	,, ,,
,, fourths.....	4½d.	,, ,,
Fluted sheet, 15 oz.	3d.	,, ,,
,, 21 oz.	4d.	,, ,,
⅛ Hartley's Rolled Plate	1½d.	,, ,,
⅛ ,, ,, ,, ...	2d.	,, ,,
¼ ,, ,, ,, ...	2½d.	,, ,,

OILS, &c.

		£ s. d.
Raw Linseed Oil in pipes or barrels..	per gallon	0 2 3
,, ,, ,, in drums.....	,,	0 2 7
Boiled ,, ,, in pipes or barrels..	,,	0 2 5
,, ,, ,, in drums.....	,,	0 2 9
Turpentine, in barrels	,,	0 3 8
,, in drums	,,	0 3 10
Genuine Ground English White Lead	per ton	21 10 0
Red Lead, Dry	,,	20 0 0
Best Linseed Oil Putty.....	per cwt.	0 8 0
Stockholm Tar.....	per barrel	1 12 0

VARNISHES, &c.

	Per gallon. £ s. d.
Fine Pale Oak Varnish	0 8 0
Pale Copal Oak.....	0 10 6
Superfine Pale Elastic Oak	0 12 6
Fine Extra Hard Church Oak	0 10 0
Superfine Hard-drying Oak, for Seats of Churches	0 14 0
Fine Elastic Carriage	0 12 6
Superfine Pale Elastic Carriage	0 16 0
Fine Pale Maple	0 16 0
Finest Pale Durable Copal	0 18 0
Extra Pale French Oil	1 1 0
Eggshell Flatting Varnish	0 18 0
White Copal Enamel	1 4 0
Extra Pale Paper	0 12 0
Best Japan Gold Size	0 10 6
Best Black Japan	0 16 0
Oak and Mahogany Stain	0 9 0
Brunswick Black	0 8 6
Berlin Black	0 16 0
Knotting	0 10 0
French and Brush Polish	0 10 0

TO CORRESPONDENTS.

C. R. P. (Below our limit).

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TENDERS.

[Communications for insertion under this heading should be addressed to "The Editor," and must reach us *not later than 10 a.m. on Thursdays.* N.B.—We cannot publish Tenders unless authenticated either by the architect or the building-owner; and we cannot publish announcements of Tenders accepted unless the amount of the Tender is given, nor any list in which the lowest Tender is under 100*l.*, unless in some exceptional cases and for special reasons.]

* Denotes *accepted.* † Denotes *provisionally accepted.*

BATHGATE.—For the erection of two houses, and alterations and additions to the police buildings in Mid-street, Bathgate, for the Standing Joint Committee of the Linlithgowshire County Council. Mr. Edward C. H. Maidman, architect, 13, South Charlotte-street, Edinburgh. Quantities by Mr. William H. Francis, 122, George-street Edinburgh:—

Masonry.—Thomas Binnie, Bathgate.
Joinery.—Spiers & Sons, Bathgate....
Slating and Plastering.—Henry Morrison, Bathgate.....
Plumbing.—Burn & Baillie, Edinburgh.....
Heating.—Mackenzie & Moncur, Edinburgh .....
} £1,529 5 4

DERBY.—For the erection of Holy Trinity Church London-road, for the Vicar and churchwardens. Mr Charles E. Hewitt, architect, 118, Queen's-road, Brighton. Quantities by Mr. Simeon Hunt, Brighton:—

		A
Walker & Slater*	£9,400	£8,000
Ford & Co.	9,200	7,900
R. Weston.....	9,197	7,567

A.—Including lower portion of tower only.

GRIMSBY.—For flagging footpath in Heneage-street, Grimsby. Mr. H. Gilbert Whyatt, Borough Engineer:—

Jas. Brunton	£194 8 0
Gilbert & Kirton.....	181 13 0
T. R. Waterman.....	168 18 0
W. Burkitt	162 10 6
Hewins & Goodhand, Grimsby*	162 10 6
H. Good	162 10 6

[*See also next page.*

GRIMSBY.—For erection of corrugated iron hospital and administrative block at Laceby, County Borough of Grimsby. Mr. H. Gilbert Whyatt, Borough Engineer, Grimsby:—

	Administration Block.	No. 1 Ward and One Covered Way.	No. 2 Ward and Second Covered Way.	Total.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.
Swallow	700 0 0	530 0 0	530 0 0	1,760 0 0
Wrinch & Sons	560 0 0	460 0 0	460 0 0	1,480 0 0
Bruce & Still	496 0 0	420 0 0	410 0 0	1,326 0 0
Crossley & Carter	520 0 0	389 0 0	389 0 0	1,298 0 0
Westminster Iron Roof and House Building Co.	458 0 0	410 0 0	410 0 0	1,278 0 0
Hewins & Goodhand	460 0 0	396 15 0	396 15 0	1,253 10 0
MacManus	455 0 0	398 0 0	398 0 0	1,251 0 0
Chick	450 0 0	390 0 0	370 0 0	1,250 0 0
Ginger	425 0 0	415 0 0	405 0 0	1,245 0 0
Rowell	449 0 0	397 10 0	397 10 0	1,244 0 0
Palmer	457 10 0	387 0 0	285 10 0	1,230 0 0
Banbury	425 0 0	350 0 0	350 0 0	1,125 0 0
Thomas	396 0 0	349 0 0	349 0 0	1,095 0 0
Smith	398 0 0	346 0 0	339 0 0	1,083 0 0
Waterman	387 0 0	334 0 0	334 0 10	1,055 0 0
Mitson & Harrison	377 0 0	330 0 0	330 0 0	1,037 0 0
Hawkins	388 0 0	385 0 0	320 0 0	1,033 0 0
Harbrow	370 0 0	325 0 0	325 0 0	1,020 0 0
Humphreys, London*	374 0 0	321 0 0	321 0 0	1,016 0 0
C. W. Dixon‡	299 0 0	262 0 0	262 0 0	823 0 0

‡ Withdrawn.

For Artesian Well.—Villiers, £135; Thistlewood, £81 15s. 6d.; Smith, Grimsby,* £64 17s. 6d.

LONDON.—For the erection of laundry at 338, Mile End-road. Mr. J. M. H. Gladwell, architect, Essex House, High-street, Stratford, E.:—

Elkington & Sons	£370	G. Brown	£337
J. Calcutt	345		

PORTSMOUTH.—For laying water mains, hydrants, &c., Camber Quay, for the Corporation:—

For 2-in. Pipes.

Water Fittings Co.	£111 3 4	McKinlay & Co.	£106 10 0
W. Beuttell	108 12 6	S. Grossmith	93 0 0

For 3-in. Pipes

McKinlay & Co.	£138 5 0	Water Fittings Co., Hyde Park-road, Southsea*	£118 8 3
S. Grossmith	119 0 0		

STRATFORD.—For the erection of twelve houses at Bissom-road, Stratford, E. Mr. J. M. H. Gladwell, architect, Essex House, High-street, Stratford, E.:—

A. Kendall	£5,980	H. E. Jones	£4,264
C. North	4,272		

UPPINGHAM.—For taking down and rebuilding the upper part of tower of Wing Church, Uppingham. Mr. J. C. Traylen, architect, Stamford:—

Wade	£347 0	Roberts	£284 10
Joyce	330 0	Halliday	254 10
Thompson	296 0	Dalby, Uppingham*	202 0
Nichols	291 10		

WALLINGTON (Surrey).—For alterations to the Windmill public-house, for Messrs. Page & Overton, Ltd. Mr. A. Broad, architect, 22, George-street, Croydon:—

Smith & Sons	£490 0	Akers & Co.	£429 0
W. Potter	448 0	Dawson & Son	407 10
Hanscomb & Smith	435 0	E. J. Burnand*	389 10
Pearson & Co.	429 0		

WYKE REGIS.—For the main sewerage and sewage disposal of Wyke Regis, for the Weymouth Rural District Council. Messrs. Lemon & Blizard, engineers, Southampton and Salisbury:—

R. H. B. Neal	£7,667 0 0	S. Wood	£5,009 10 5
J. A. Bartlett	6,894 0 0	J. T. Whettam, Jun.	4,980 0 0
Bugbird & Co.	6,203 0 0	Cooke & Co.	4,900 0 0
F. W. Trimm	5,481 0 0	Jesty & Baker, Portland†	4,600 0 0
Streeters & Todhunter	5,288 0 0		
A. G. Osenton	5,129 17 3		

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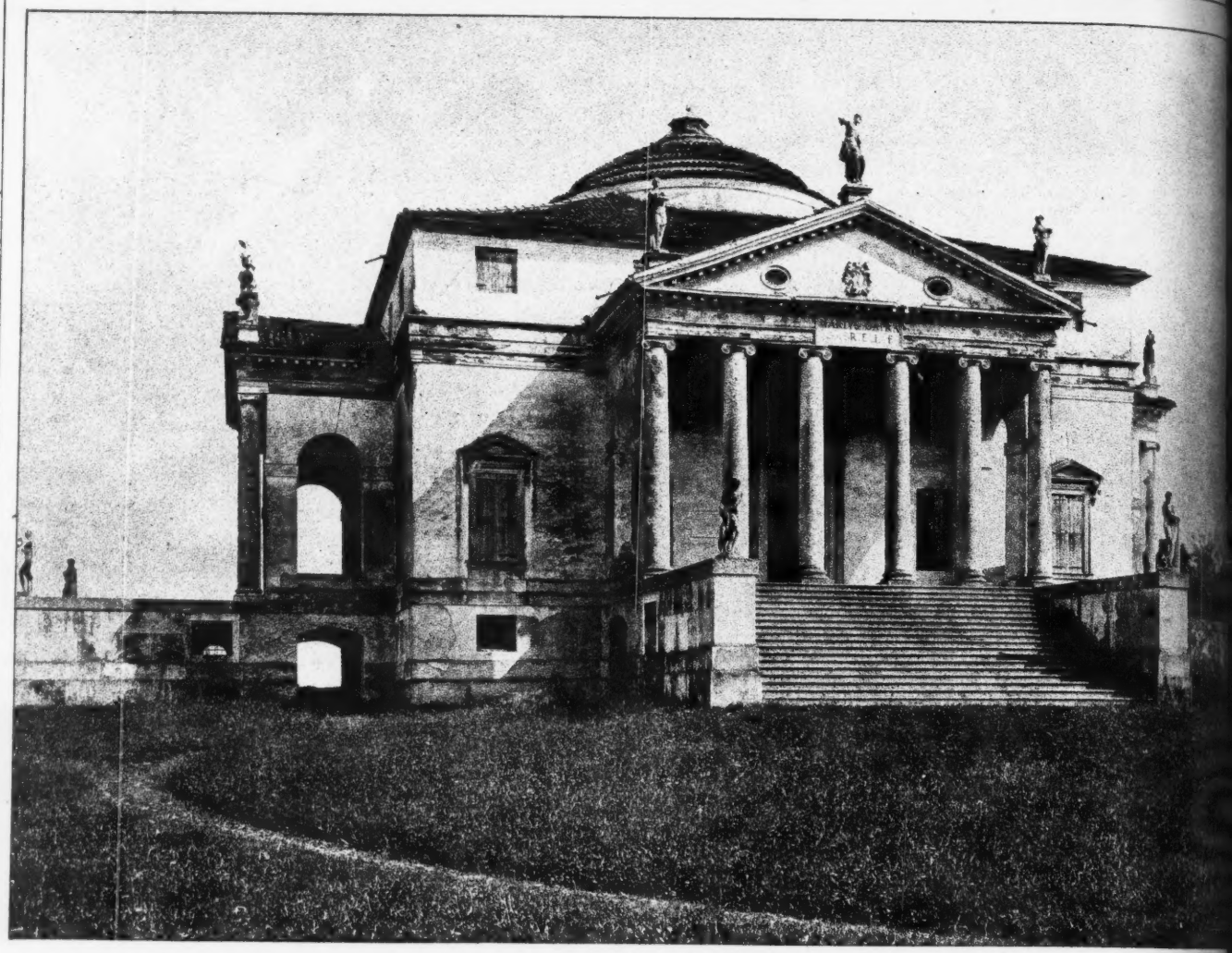
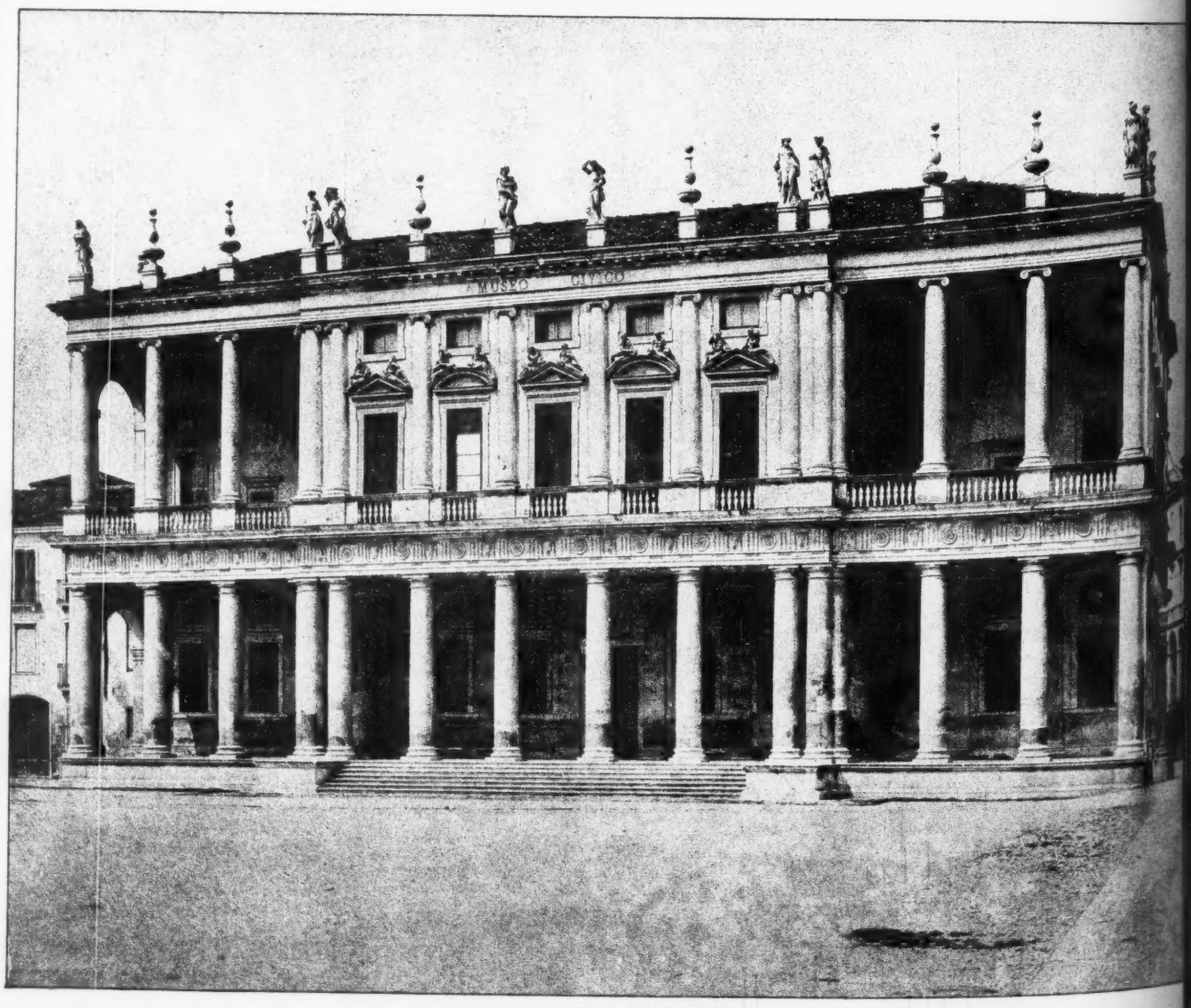
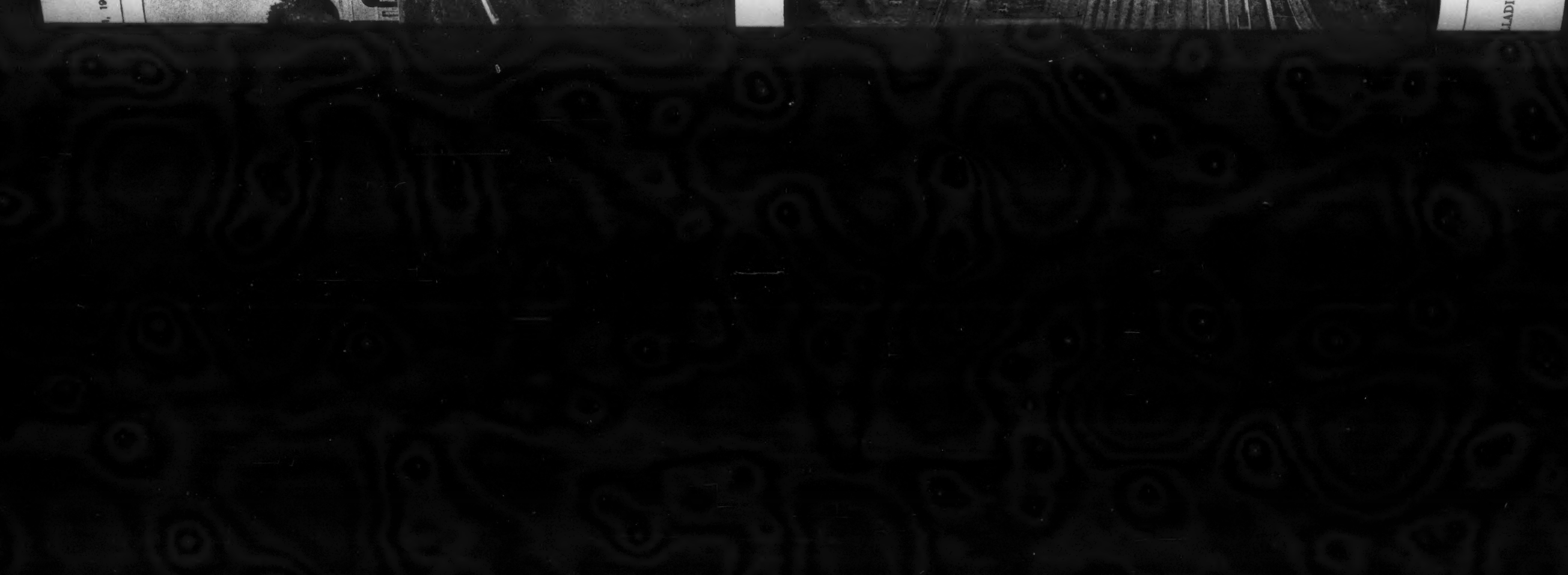
LIVERPOOL: 6 and 8, HATTON GARDEN.
GLASGOW: 47 and 49, ST. ENOCH-SQUARE
BRISTOL: ASHTON GATE WORKS, CORONATION-RD.

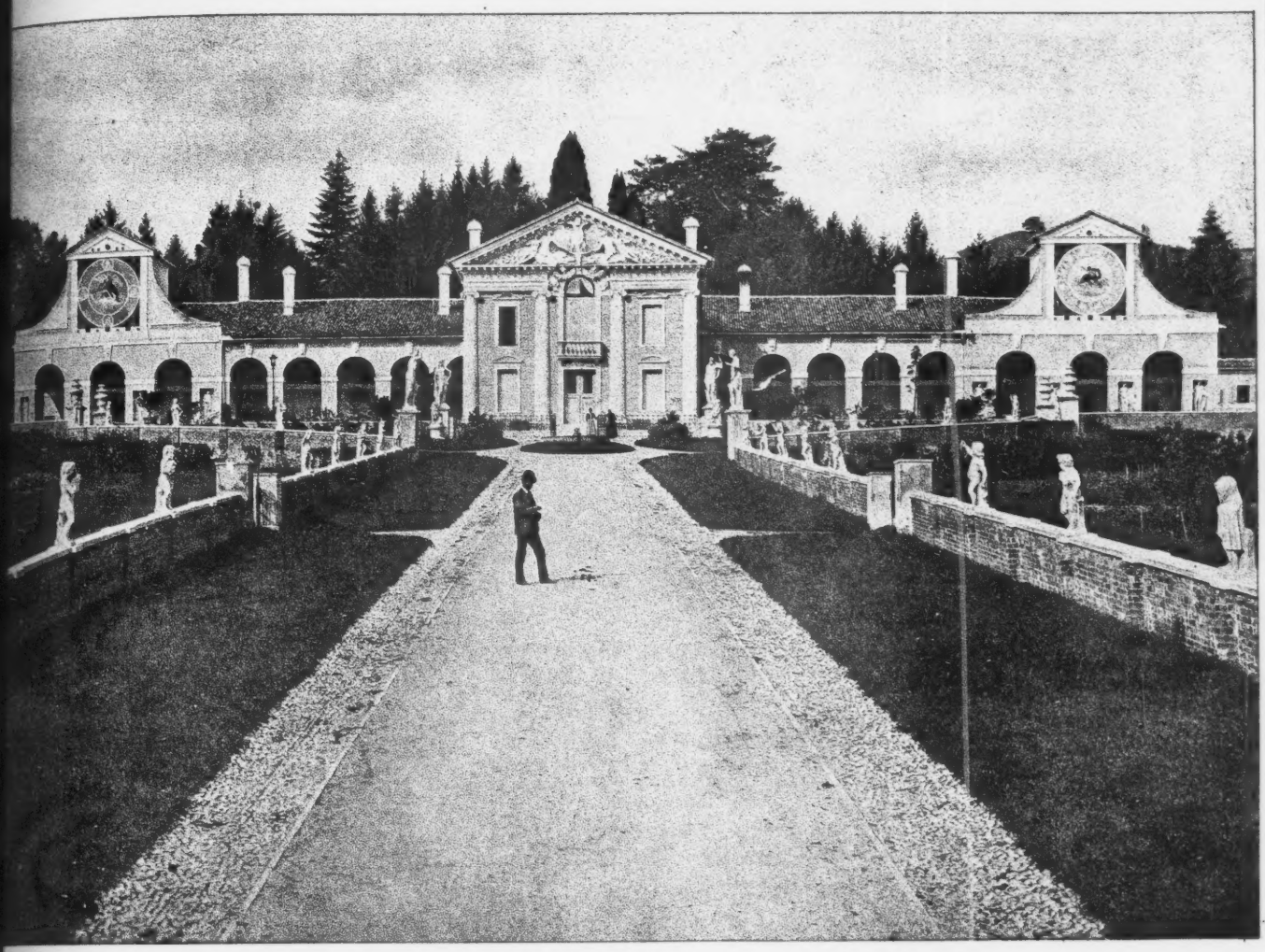


VILLA ROTONDA.



PALAZZO CHIEREGATI.





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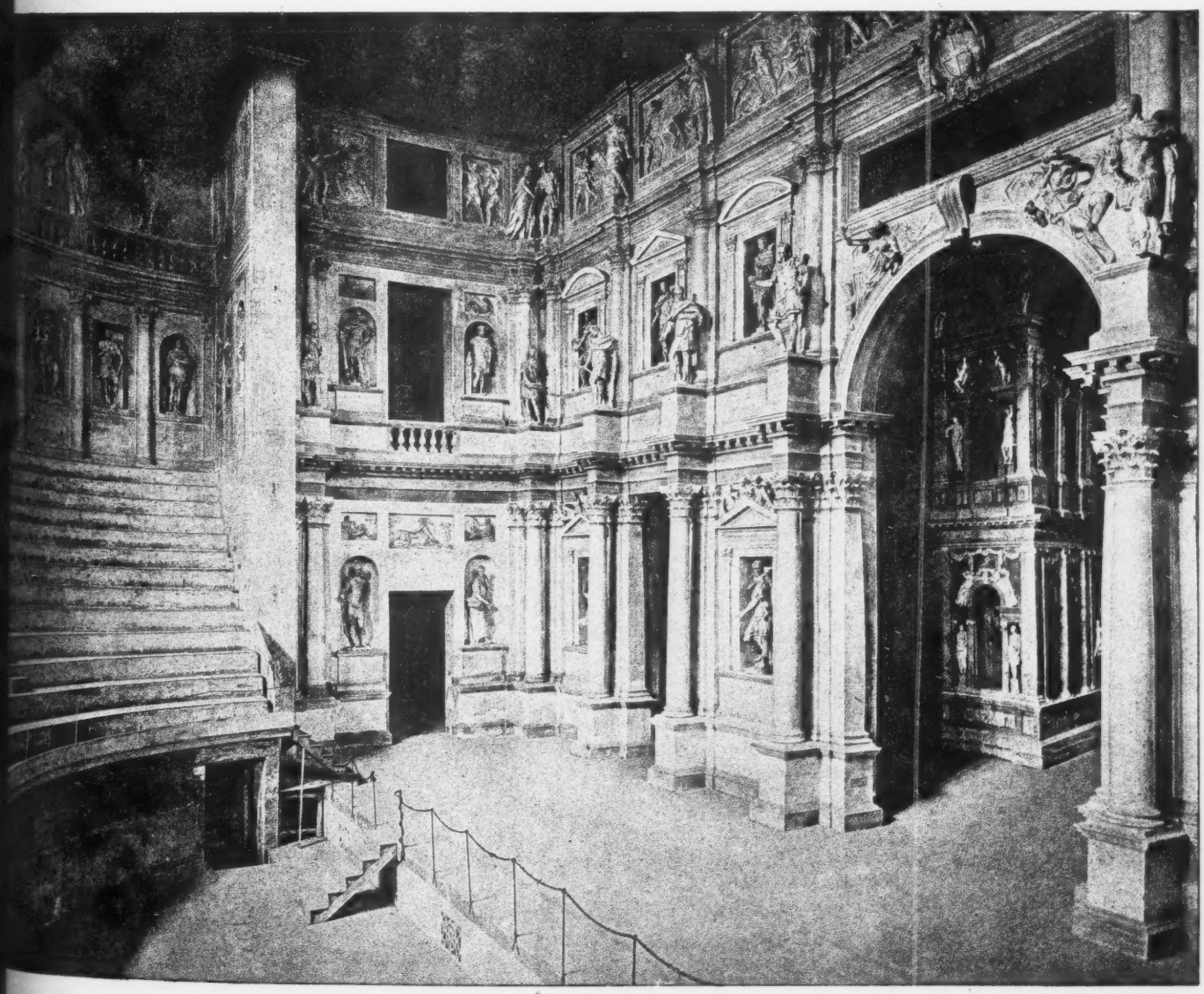
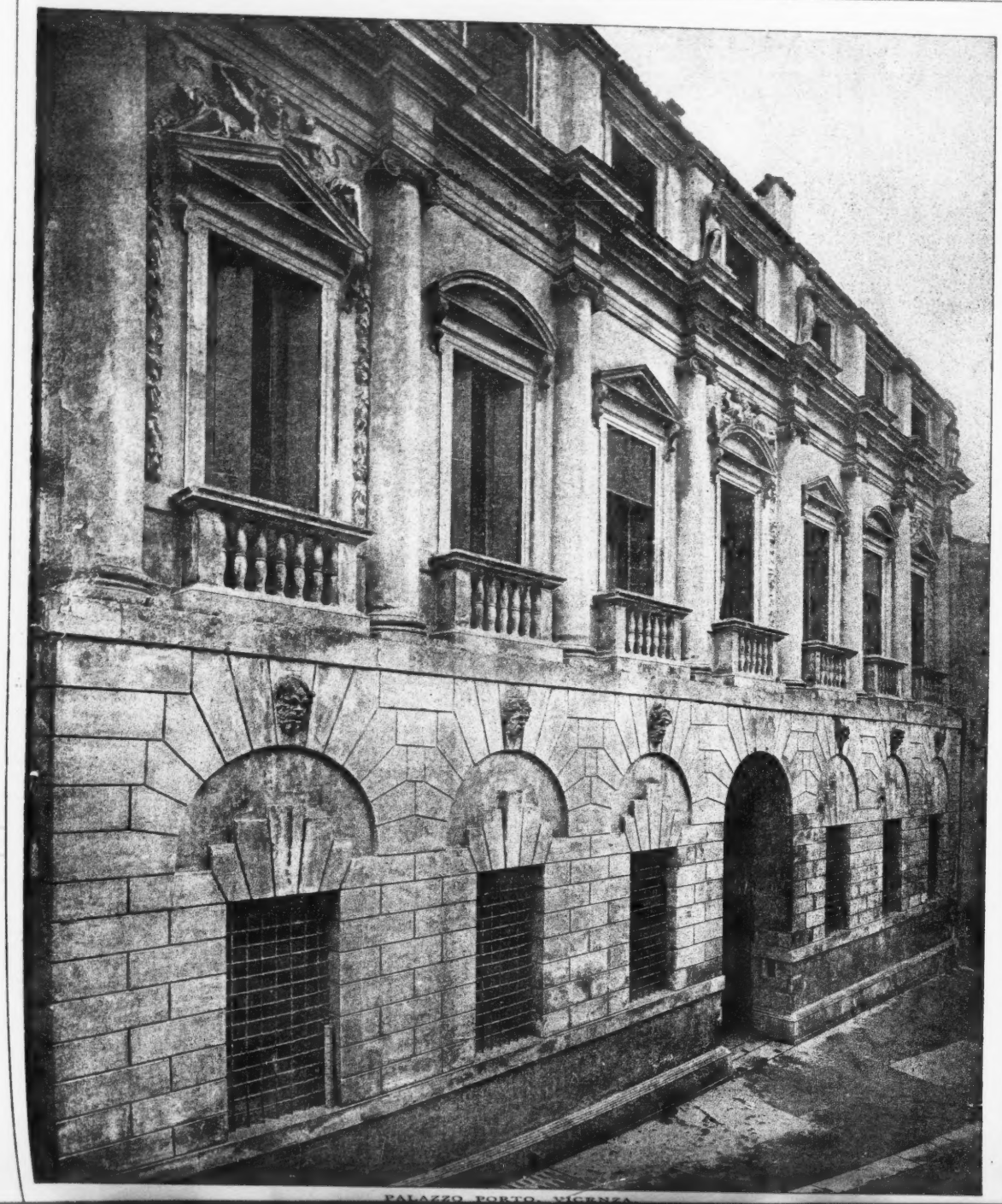


THEATRE, VICENZA.

"INK-PHOTO," SPRAGUE & Co LTD 4 & 5, EAST HARDING STREET, FETTER LANE, E.C.



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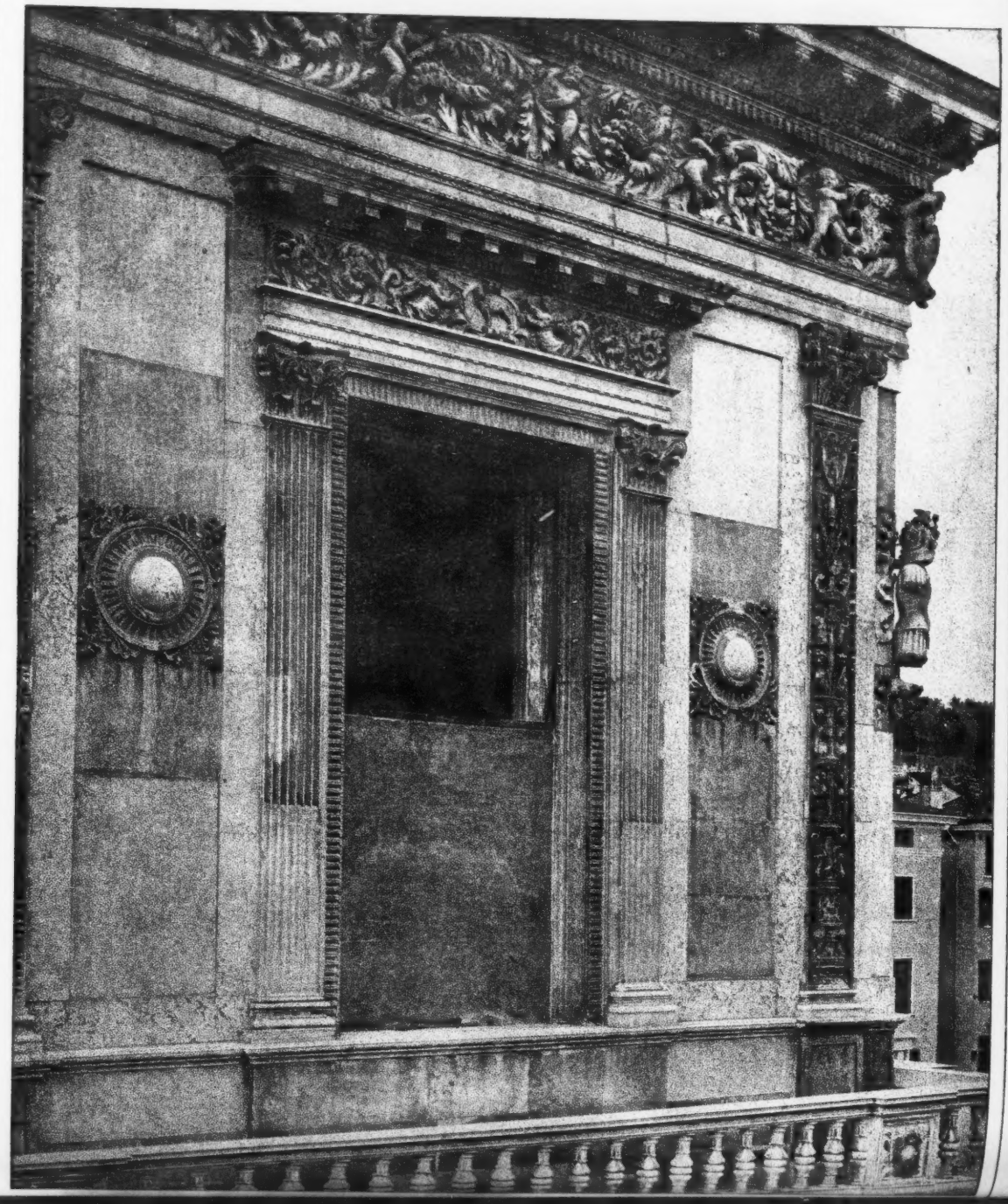

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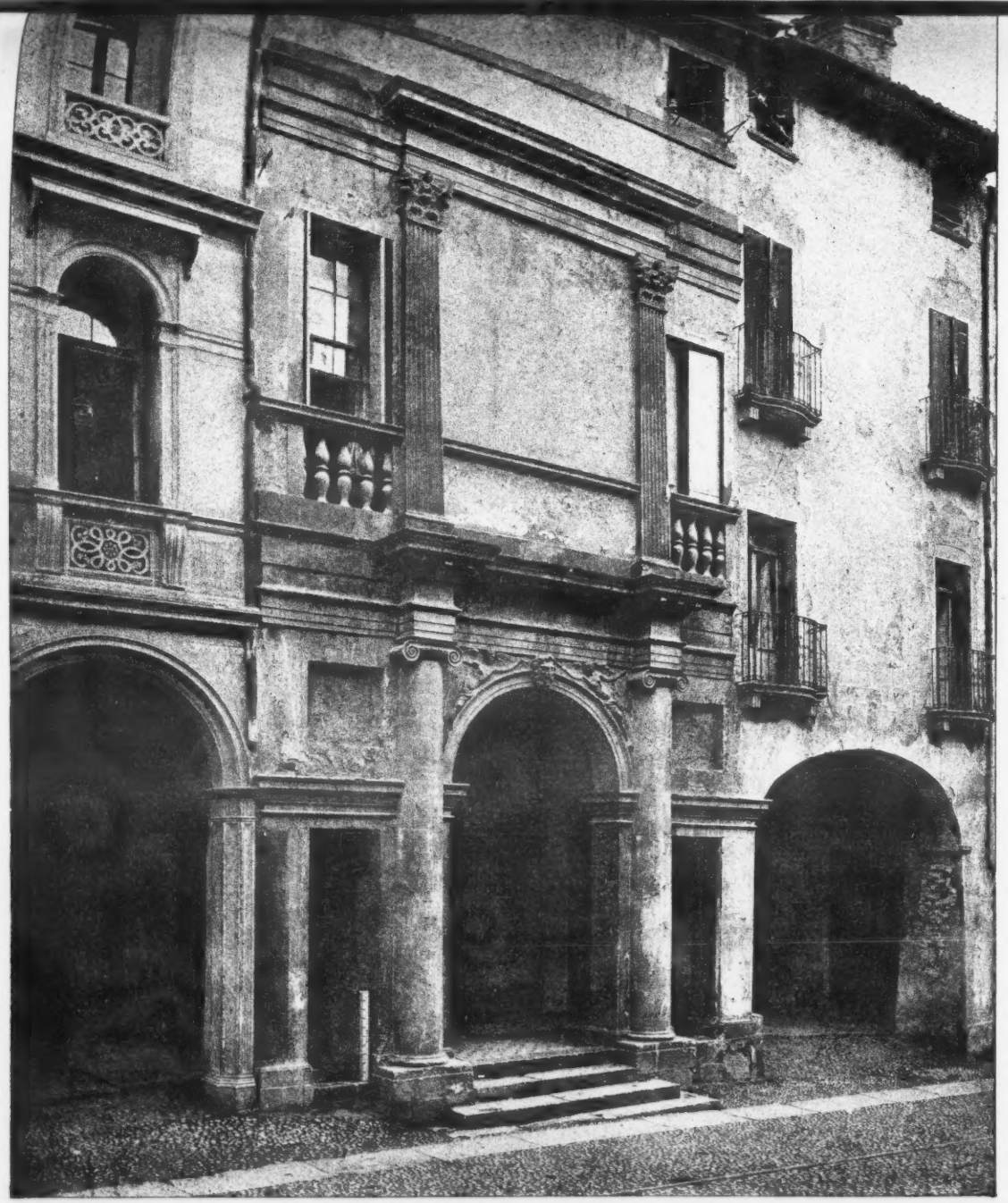
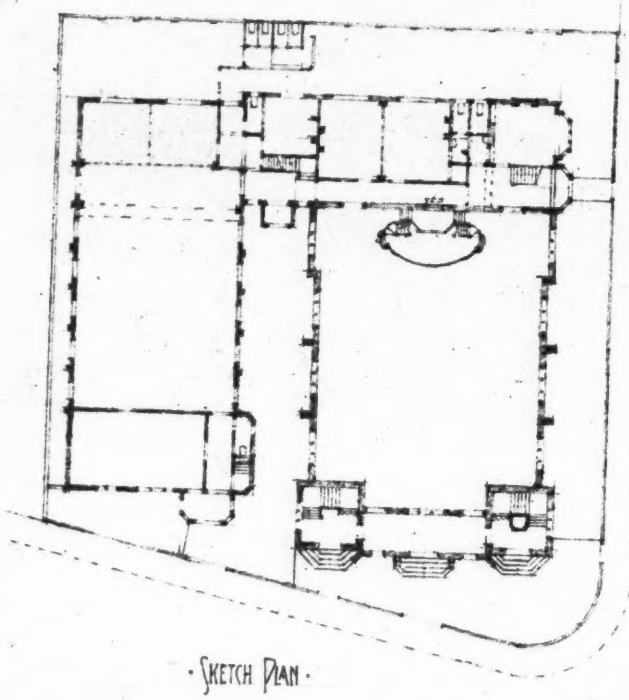


HOUSE, VICENZA.

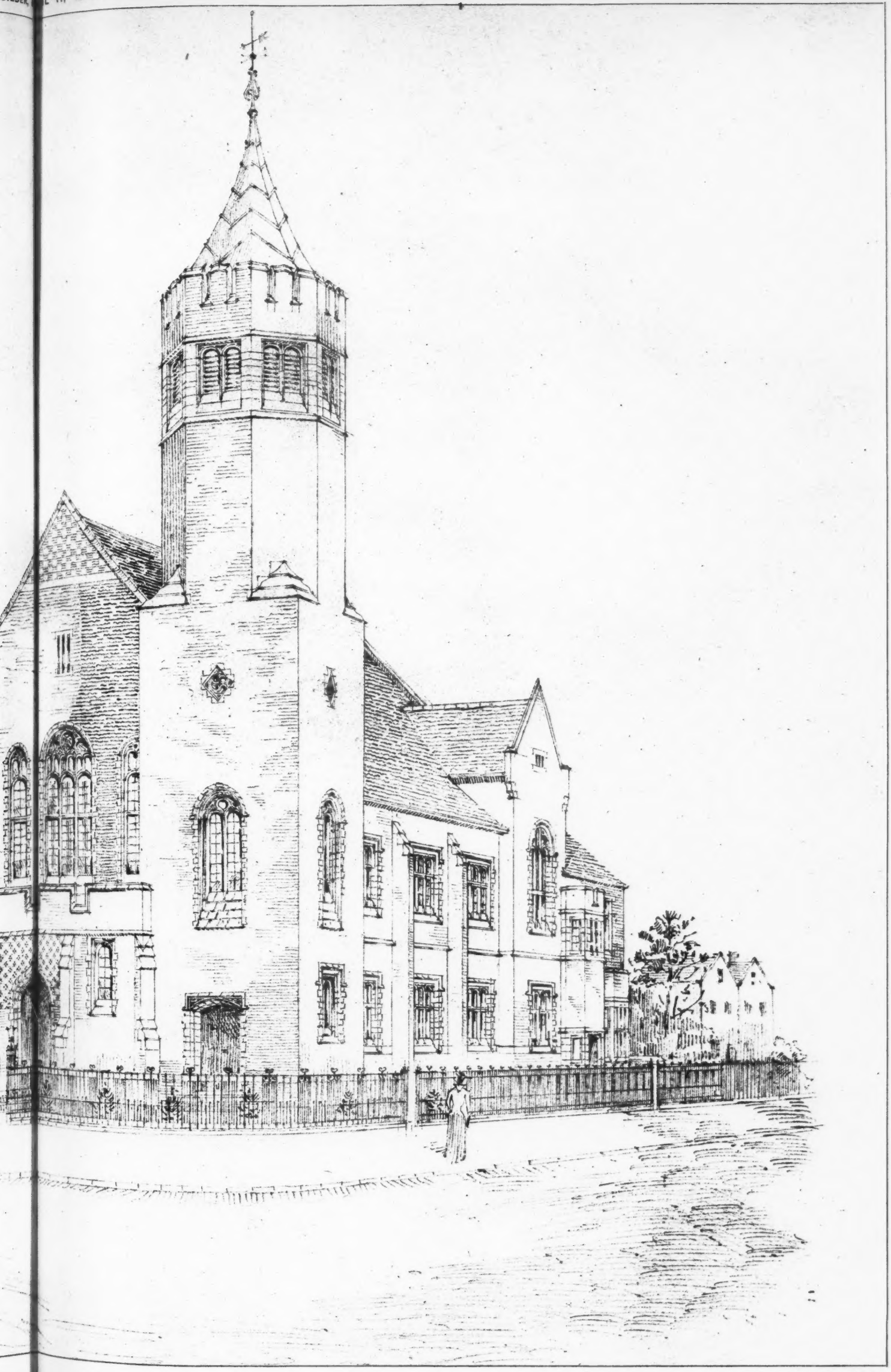
PALAZZO VALMARANO.

'INK-PHOTO' SPRAGUE & Co LTD 4 & 5, EAST HARDING STREET, FETTER LANE, E.C.



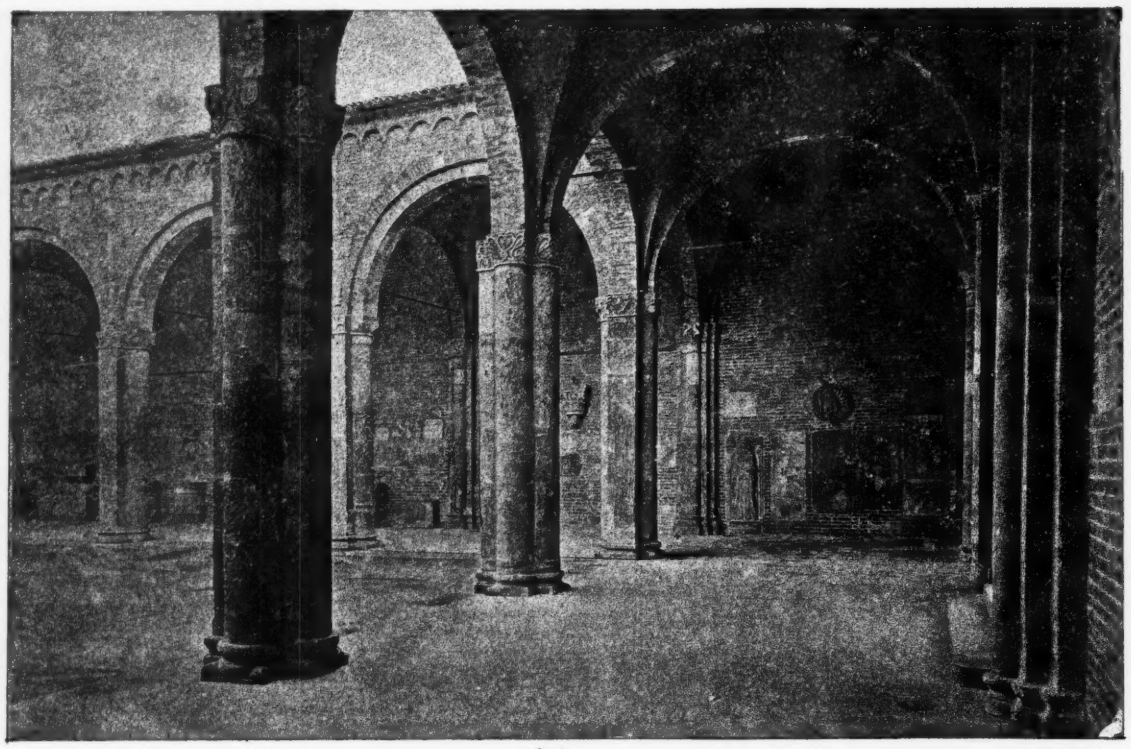
· SKETCH PLAN ·

THE "ROBERT HALL" MEMORIAL CHAPEL, L[illegible]ESTER.—M



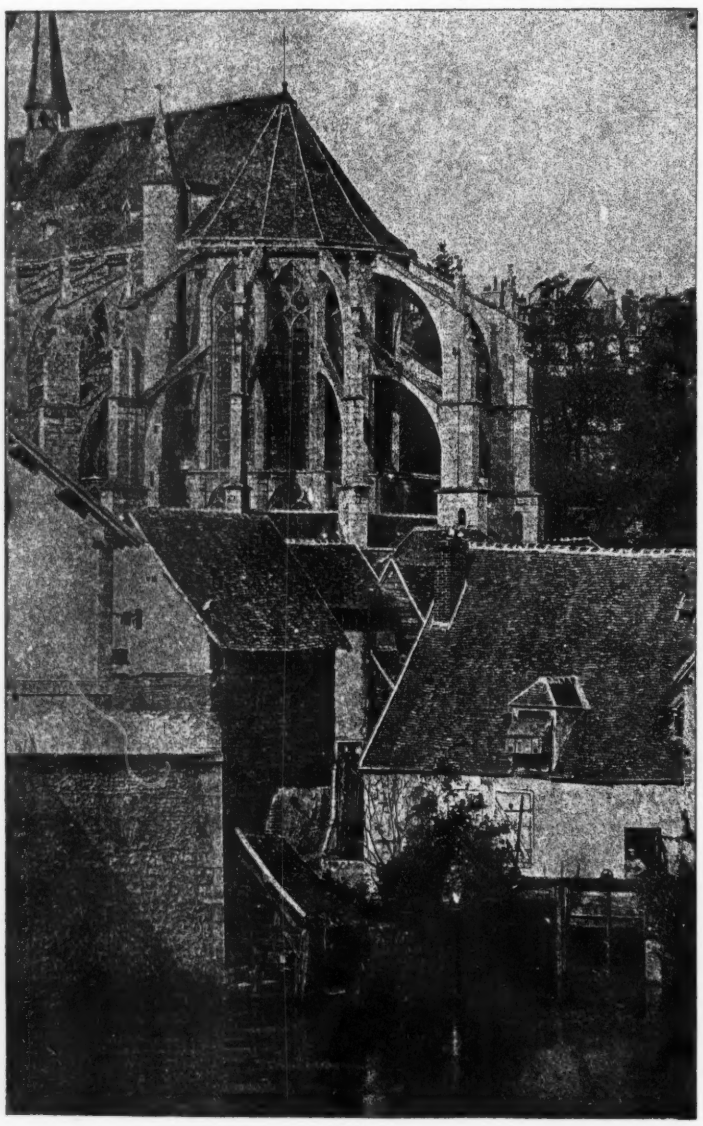
"INK-PHOTO." SPRAGUE & Co LTD 4 & 5, EAST HARDING STREET, FETTER LANE, E.C.

EL, L ESTER.—Mr. Walter Brand, A.R.I.B.A., Architect.



(A.)

(B.)

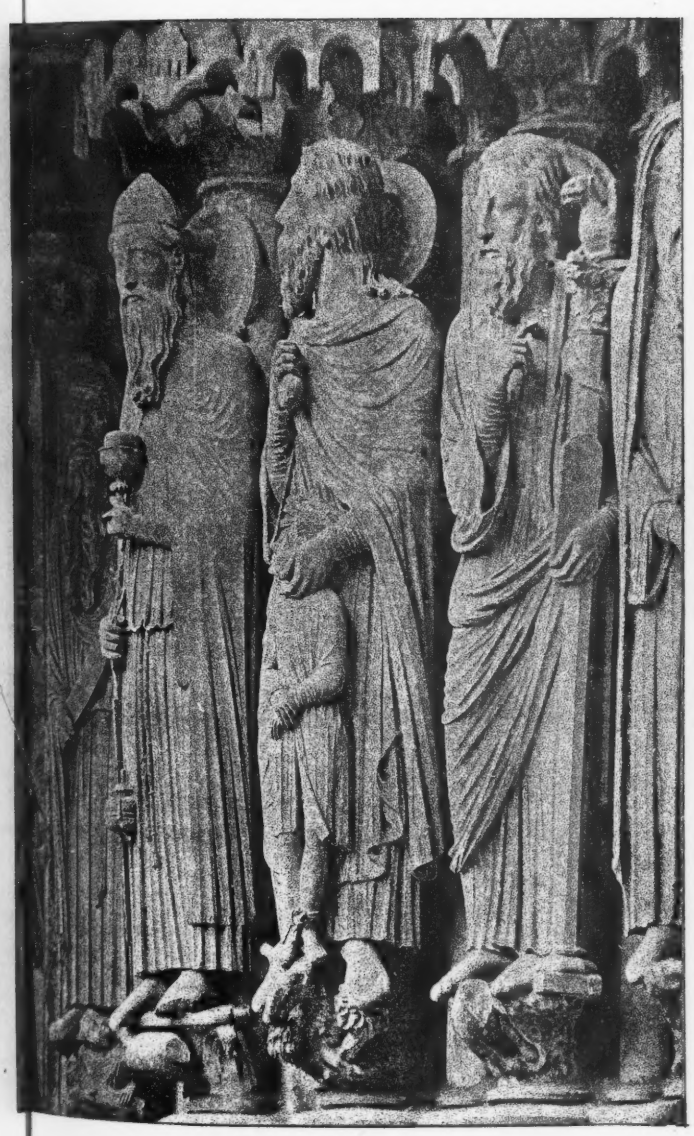


(D.)

(E.)

(B.)

(C.)



(F.)

(G.)

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